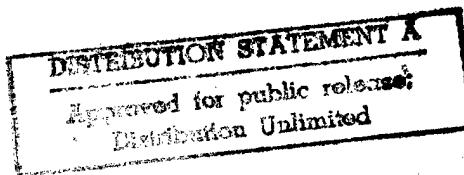


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USSR Report

AGRICULTURE

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13 April 1984

USSR REPORT
AGRICULTURE

CONTENTS

MAJOR CROP PROGRESS AND WEATHER REPORTING

Agricultural Measures for Successful Sowing Discussed (SEL'SKAYA ZHIZN', 22 Jan 84)	1
Measures for Improving Fertility of Soils in Moldavian SSR (KHIMIYA V SEL'SKOM KHOZYAYSTVE, No 12, Dec 83)	4
Use of Crop Rotation Plans in Moldavian SSR (P. Kibasov; SEL'SKOYE KHOZYAYSTVO MODAVII, No 1, Jan 84). .	6
Unsatisfactory Organization of Seed Preparation Scored (SOVETSKAYA ROSSIYA, 14 Jan 84)	10
Efficient Preparation for Spring Sowing Campaign Urged (SEL'SKAYA ZHIZN', 17 Feb 84)	12
Quality Inspection of Seeds Before Sowing Advocated (PRAVDA, 20 Jan 84)	15
Shortcomings in Preparation for Spring Field Work Noted (V. Udachin; SOVETSKAYA ROSSIYA, 11 Mar 84)	18
Insufficient Delivery of Fertilizers to Fields Scored (SEL'SKAYA ZHIZN', 6 Mar 84)	20
Mismanagement in Agricultural Equipment Repairs Decried (SOVETSKAYA ROSSIYA, 19 Feb 84)	23
 Briefs	
Unstable Winter Weather	25
Thunderstorms in Moscow	25
Elite Grain Seeds	26
Shipment of Sunflower Seeds	26

Nitrogen Topdressing	26
Preparation for Irrigation	26
Improvement in Seed Stock	27
Spring Sowing Measures	27
Preparation of Irrigation Systems	27
Shortage of Seeds	28
Aerial Fertilizer Application	28
Unutilized Production Potential	28
Cultivation of Winter Barley	29

LIVESTOCK FEED PROCUREMENT

Poor Quality of Feed Mix Concentrates in Ukrainian Hog, Poultry Complexes (A. Zinchenko; SIL'S'KI VISIT, 1 Feb 84)	30
--	----

LIVESTOCK

Problems in Specialization of Beef Cattle Raising in Kazakhstan (S. Kasenov; NARODNOYE KHOZYAYSTVO KAZAKHSTANA, No 1, Jan 84)	33
---	----

Preventive Measures To Reduce Illness in Young Calves (S. Tzhupina, Yu. Dol'nikov; SEL'SKAYA ZHIZN', 7 Mar 84). .	40
--	----

AGRICULTURAL MACHINERY AND EQUIPMENT

Newer Grain Combining Technology Described (E. V. Zhelnin; ZERNOVOYE KHOZYAYSTVO, No 1, Jan 84)	43
---	----

TILLING AND CROPPING TECHNOLOGY

Preparations in 1983 for Fall Planting (SEL'SKAYA ZHIZN', 17 Aug 83)	52
---	----

Control of Ground Beetles in Winter Wheat (V. V. Popovskiy; ZASHCHITA RASTENIY, No 2, Feb 84)	57
---	----

MAJOR CROP PROGRESS AND WEATHER REPORTING

AGRICULTURAL MEASURES FOR SUCCESSFUL SOWING DISCUSSED

Moscow SEL'SKAYA ZHIZN' in Russian 22 Jan 84 p 1

Article: "Preparing for Spring"

Text According to the calendar winter is now in its second half. Even though snow still lies on the ground and cold winds blow over fields, the country's farmers have begun an active preparation for spring. Kolkhozes, sovkhozes and all the subdivisions of the agroindustrial complex strive to more rapidly and better carry out winter agrotechnical measures and to create reliable prerequisites for successful sowing and for the production of a high harvest of all crops in 1984.

A big forward step is now to be taken in the realization of the decisions of the May (1982) and December (1983) Plenums of the CPSU Central Committee and in the fulfillment of the country's Food Program. The party and the government are doing their utmost for an intensive development of agricultural production. The deliveries of material and technical resources are increasing and capital investments are rising. A total of 23.3 million tons of mineral fertilizers alone (in terms of 100 percent of nutrients) will be received now. All this serves as a real basis for the attainment of the highest indicators in the output of grain, potatoes, vegetables, fruits and industrial and fodder crops on every kolkhoz and sovkhoz. Therefore, on all farms it is now necessary to take measures to more widely apply the most advanced technologies and to better utilize the machine pool and labor and material resources.

Kuban farmers are working well these days. They are topdressing winter crops, that is, wheat and barley, whose area in Krasnodar Kray exceeds 1.8 million hectares, and completing the repair of equipment. Special links are preparing seeds. Fertility detachments have carted out more than 31 million tons of organic fertilizers to fields--almost 8 tons per hectare of arable land--and continue their delivery. The overall performance of all operations of the pre-spring cycle is aimed at an increase in the yield of all agricultural crops.

Many farms in the Ukraine, the Volga Area and Kazakhstan efficiently utilize the time remaining before the departure to the field. The crop structure is refined everywhere and in accordance with zonal farming systems the technology of cultivation of agricultural crops is developed so that every kolkhoz and sovkhoz under any weather conditions may be able to grow the maximum harvest and to fulfill and overfulfill state plans for the sale of all types of crop and livestock products to the state.

Seed stocks require special attention. There are farms where there is a shortage of seeds of some crops and of the best regionalized varieties. That is why it is extremely necessary to accelerate exchange operations and to more rapidly deliver the lacking quantity of seeds. However, the chief thing is to ensure their high quality by the beginning of the sowing campaign. Now it is better than during past years, although the contrasts in this matter have not yet been eliminated completely. Whereas in Belgorod, Volgograd, Saratov and Orenburg oblasts and Altay Kray almost all the seeds of grain and pulse crops meet the requirements of the sowing standard, on Yaroslavl farms in their dockage, germination and moisture 19 percent of the checked stocks do not meet the standard, on Novosibirsk farms, 31 percent, on Kurgan farms, 36 percent and on Irkutsk farms, 52 percent.

As the data of science and advanced experience show, first-category seeds give the best sprouts. Where they are sown on fields, the highest harvests are obtained. A total of 42 quintals of grain per hectare were gathered on the Kolkhoz imeni Kalinin in Atyashevskiy Rayon, the Mordovian ASSR, last year. Even now high-quality seeds lie in warehouses here. Agronomists vigilantly watch over the quality of every quintal of grain. More than 93 percent of the seeds have been brought up to the first category in Kirovograd Oblast, 75 percent, in Voronezh Oblast and 65 percent, in Bryansk Oblast. Unfortunately, this cannot be said about kolkhozes and sovkhozes in Kostroma, Ryazan, Kemerovo and other oblasts, where first-category seeds do not make up even one-tenth, which should alarm managers of rayon agroindustrial associations and party organizations.

The harvests and gross output of all crops directly depend on the level of soil fertility and on the general standard of farming. Kolkhozes, sovkhozes and the agrochemical service are called upon to sharply raise the yield from the application of mineral fertilizers and to improve the preparation of organomineral mixtures so that as many organic fertilizers as possible may be procured. Fertilizers should be delivered to every farm in advance so that they may be applied in a full dose on all irrigated fields and to grain, industrial and vegetable crops and their losses may be avoided.

Fertility detachments now deliver humus and composts to fields at many places. This work is carried out in an organized manner on farms in Belorussia and Lipetsk and Tambov oblasts. It is necessary to better utilize peat for fertilizers and litter, to apply phosphorite and gypsum in a high-quality manner and to attain the greatest effect from the liming of acid soil. Strict control over the state of winter crops must be established and they must be top-dressed on time and protected against ice crust and other unfavorable weather effects.

Moisture deficiency often is a limiting factor in the increase in fertility. Droughts occur sometimes in one place and sometimes in another. Therefore, it is necessary to right now see to it that a sufficient quantity of water is accumulated in soil. We must more fully retain winter precipitation and with all the available means prevent the useless flow of melt and rain water. There were abundant snowfalls in the country's eastern regions not long ago. Altay, Bashkiria and North Kazakhstan embarked on snow retention. However, this work requires a wider scope and a better quality.

It is important to also organize the training of farmers everywhere and to thoroughly familiarize them with the experience of advanced farms, brigades and links, especially those working on the basis of the collective contract. It is necessary to more confidently change over to cost accounting relations in all the links of the agroindustrial complex. We must place equipment and irrigation networks in full readiness as quickly as possible, staff brigades and links and prepare efficient plans for the performance of spring field operations, taking the new and advanced into consideration in technological maps. Everything must be prepared so as to obtain maximally high harvests on every kolkhoz and sovkhoz--this is now the main task of managers and specialists of farms, party organizations, councils of rayon agroindustrial associations and all workers of the country's agroindustrial complex.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

MEASURES FOR IMPROVING FERTILITY OF SOILS IN MOLDAVIAN SSR

Moscow KHIMIYA V SEL'SKOM KHOZYAYSTVE in Russian No 12, Dec 83 pp 2-7

Excerpts The use of chemical processes for agriculture is a component part of the problems associated with carrying out the Food Program of the USSR. A chief means for solving this task is that of production intensification. During the period that has elapsed since the March (1965) Plenum of the CPSU Central Committee, a great amount of work has been carried out in this regard in the Moldavian SSR: in 1982 the power-worker ratio in agriculture increased by a factor of 4.3 above the figure for 1965, the irrigated land areas -- by a factor of 3.2 and mineral fertilizer deliveries -- by a factor of 5.4. During 2 years of the 11th Five-Year Plan alone, the fixed productive capital in the agrarian sector increased by 10 percent. During the 1976-1980 period, gross output production for Moldavian agriculture increased by a factor of 1.8 above the figure for 1961-1965, including grain -- by 1.3, grapes and sugar beets -- by 1.6-1.7, tobacco and vegetables -- by 2.5-2.8, fruit -- by 3.3, meat and milk -- by 1.9 and eggs -- by a factor of 2.1.

For the purpose of raising the productivity of the lands, priority importance is being attached to the culture of farming: the structure of production, crop rotation plans, soil cultivation methods and the agricultural crop varieties and hybrids. The farming structure which has prevailed in Moldavia during the post-war years has for the most part conformed to the tasks which have confronted agriculture throughout the republic. However, accumulated experience has shown that it is in need of improvement. In 1982 the structure of the republic's grain fields was examined: they began sowing more winter barley, corn, alfalfa and pulse crops and less wheat and annual grasses. Such a structure is making it possible to create the conditions required for the efficient alternation of field crops in crop rotation plans, to solve the grain forage problem in a better manner and to raise the quality of soil cultivation work and the fertility of the soil.

Purposeful work is being carried out throughout the republic in connection with improving the fertility of the soils. Moldavia is a region of highly fertile lands. Chernozem soil occupies 90 percent of the agricultural land. The average evaluation for soil fertility -- 70 points. However, our existing production structure is intensifying the mineralization of humus, the balance of which at the present time is negative on a large portion of the arable land.

A great amount of work is being carried out throughout the republic directed towards raising the humus content in the soil: the procurements of organic fertilizer are increasing (in 1982, 1.6 times more such fertilizer was applied to the soil than was applied in 1980; based upon alluvial soils and semi-liquid organic fertilizers, we are producing more than 1 million tons of compost) and measures are being taken to ensure more efficient use of mineral fertilizers and chemical agents for protecting plants.

Changes have taken place in the schedules for applying fertilizers. Under Moldavian conditions, the greatest results are obtained from fertilizers when they are applied in combination with the principal tilling of the soil. Whereas earlier mineral fertilizers were applied mainly during spring cultivation work, in 1983 70-75 percent will be applied during the principal soil tilling work and the remainder -- in top dressings for winter wheat and perennial grasses, for programmed sowings of corn and as an initial arrangement for the sowing of spring crops. The use of fertilizers in connection with fall plowing, under our conditions, constitutes a considerable reserve for raising cropping power.

An expansion is taking place in the use of a new and very promising type of fertilizer for the republic -- liquid ammonia. In our region, anhydrous ammonia guarantees a worthy increase in yield -- 7-8 quintals of winter wheat grain per hectare, 10-13 quintals of grain corn and 70-80 quintals of sugar beets. For more purposeful work, a comprehensive program for raising the fertility of soils in the Moldavian SSR during the 11th Five-Year Plan, from the standpoint of rayons and each specific farm, has been developed and approved by the republic's leading organs.

Emphasis should be placed upon the great importance being attached to highly effective participation by scientists in solving the problems associated with raising the fertility of soils and their productivity and also with the use of chemical processes in agriculture.

We consider close collaboration and efficient coordination of studies and unity of action by scientific and production workers as a guarantee for our future successes.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

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USE OF CROP ROTATION PLANS IN MOLDAVIAN SSR

Kishinev SEL'SKOYE KHOZYAYSTVO MOLDAVII in Russian No 1, Jan 84 pp 35-36

Article by P. Kibasov, doctor of agricultural sciences and head of a laboratory for crop rotation plans and cultivation of soils of the Moldavian Scientific Research Institute of Field Crops, at the Selektsiya Scientific Production Association: "Crop Rotation Plans -- The Foundation for Stable Farming and for Combating Soil Erosion" /

Text Crop rotation plans have not been introduced on 40 percent of the republic's arable land. Eighty percent of the crop rotation plans introduced into operations have not been mastered. What type of structure is required for the area under crops? The steepness of slopes and the types of crop rotation plans.

Crop rotation plans constitute the foundation for the culture of farming, which makes it possible to combine concern for the intensification of field crop husbandry with concern for protecting the environment. Herein lies the key to obtaining high and stable yields and raising the efficiency of agricultural production.

This is why, in solving the Food Program task, we are obligated to make earnest use of crop rotation plans, the status of which in the republic leaves a great deal to be desired.

In publishing this article by Doctor of Agricultural Sciences P.T. Kibasov, the Editorial Board hopes that the discussion of this important subject will be continued and that the words will be transformed into action.

* * *

In order to achieve more efficient use of the land, maintain the physical properties (structural status and composition) of the soil at a high level and, it follows, achieve a more favorable combination of water and air conditions and soil fertility, tremendous importance is attached to the use of scientifically sound crop rotation plans.

They constitute the most effective agrotechnical means for combating weeds, diseases and field crop pests, for preventing the soil erosion processes and

for achieving more correct use of equipment and improvements in labor productivity. Thus the cropping power of crops grown in crop rotation plans is as a rule higher and the expenditures for growing the products lower than when the crops are grown in the absence of scientifically sound placements following good predecessor crop arrangements.

A comparison of yields obtained in Glodyanskiy, Ryshkanskiy, Lazovskiy and Faleshtskiy rayons, where crop rotation plans were mastered at a few farms, against the yields obtained from nearby experimental crop rotation plans of the Moldavian Scientific Research Institute of Field Crops and the Seleksiya NPO Scientific Production Association reveals that the average winter wheat grain yield during the 1971-1980 period from farms in these rayons was less by 12.5-20.5 quintals per hectare, corn -- by 25.4-32.3, sugar beet roots -- by 103-216, sunflower seed -- by 2.3-4.9, corn for silage -- by 247-265 and annual grass fodder -- by 97-119 quintals per hectare.

This testifies to the fact that the introduction and constant observance of crop rotation plans constitutes a chief reserve for obtaining, during the next few years, an average winter wheat grain yield for the republic, following good predecessor crop arrangements, of not less than 45-50 quintals per hectare, corn -- 55-60, sugar beets -- 350-400, sunflowers -- 24-25, corn for silage -- 300-350 and annual grass fodder -- 200-220 quintals per hectare. Thus the introduction and mastering of crop rotation plans is a chief task of farming throughout the republic.

Nevertheless, the introduction and mastering of these plans are proceeding extremely slowly. A check on the status of fulfillment of this work reveals that crop rotation plans have been introduced only at 500 farms in Moldavia and on an area of 1,020,000 hectares. This represents 64 percent of the overall number of farms and 60 percent of the overall area of arable land.

The disparity between the existing structure for the areas under crops and the agrotechnical principles underlying the development of scientifically sound crop rotation plans for the sloping land conditions found in Moldavia and also the partial redistribution of lands among land users and the formation of a large number of new farms (to a certain degree the result of specialization, concentration, interenterprise cooperation and agroindustrial integration) have caused the delay that has taken place in the mastering of crop rotation plans in the republic.

Thus, according to data obtained from a check carried out in 1983, crop rotation plans were mastered only on 100 farms (20 percent of the number introduced), with only an alternating of crops in terms of time being carried out in the remaining cases as conditions permitted. This is creating unfavorable conditions for obtaining stable yields and for combating weeds, diseases and pests.

The structure for the area under crops is the foundation for a scientifically sound placement of crops following predecessor crop arrangements and their alternation in a crop rotation plan. In addition, it determines to a considerable degree the erosion stability of a crop rotation plan and, it follows, protection of the soil against disaggregation. Nevertheless, the structure for the area under crops in the republic, as already mentioned, is far from perfect. It is hindering the scientifically sound placement of crops following predecessor

arrangements and their alternation and this in turn is resulting in the incorrect use of soil fertility and adversely affecting the yield levels.

A high saturation of row crops is one of the chief reasons for the strong development of water and, at times, wind erosion. Thus according to data supplied by the Moldavian Scientific Research Institute of Field Crops (I.Ya. Remezyuk), which carried out experiments on the fields of the Reutsel Sovkhoz in Faleshtskiy Rayon, on slopes with a steepness of 7-9° (typical heavy clayey loam chernozem), the annual erosion of soil was as follows: from sowing of corn -- 39.9, sunflowers -- 42.3 tons per hectare (while at the same time, from a sowing of alfalfa -- 0.6, winter wheat -- 8 and peas -- 9.4 tons per hectare).

As is known, erosion is accompanied by a reduction in the humus content, in water-stable aggregates and in the fertility of the soil. Thus, if in a crop rotation plan following a sowing of alfalfa there is 3.72 percent humus in the 0-40 cm layer, then following corn -- 3.48 and sunflowers -- 3.42 percent. Accordingly, the content of water-stable structural aggregates following alfalfa equalled 80.4 percent and following corn and sunflowers -- 70.4 and 70.1 percent respectively. Naturally, the cropping power fell as a result of soil erosion. It thus follows that under Moldavian conditions and taking into account the productivity of the crops during their cultivation, special attention should be given to the soil-protective potential of the crops.

A comparative evaluation of the various types of crop rotation plans on slopes with a steepness of 9° has shown that for a low saturation (15-17 percent) of row crops and precisely: winter wheat, corn, peas, winter wheat, alfalfa and alfalfa, the erosion of soil amounts to 11.1 tons per year. In a crop rotation plan of the type: winter wheat - corn - peas - corn - winter wheat - corn, that is, 50 percent row crops, it equalled 24.2 tons per hectare annually. The soil erosion was even greater in a crop rotation plan where the row crops occupied 66.7 percent; winter wheat - corn - peas - corn - sunflowers - corn. And very limited soil erosion was observed on such a slope in a crop rotation plan which lacked row crops, of the type: winter wheat - peas - winter wheat -- spring crops plus grasses - grasses - grasses.

Based upon the above, it would seem that row crops can be sown on arable land consisting of level soil and with slopes less than 1° (345,900 hectares) up to 70-80 percent, including vegetable crops -- up to 20 percent and also for corn to be cultivated without change. In a beet growing zone having the same relief, the crop rotation plan can be of the type: corn for silage - winter wheat, sugar beets - corn - sunflowers, that is, the corn here will occupy 40 percent of the area, sunflowers and sugar beets -- each 20 percent and winter grain crops -- 20 percent.

On slopes with a steepness of 1-5° (1,041,700 hectares of arable land), the possibility exists of sowing row crops on up to 60 percent of the area. In this instance, in the same zone of the republic, crop rotation plans of the following type should be developed: corn for silage, vetch-oats - winter wheat, winter barley - sugar beets, tobacco - corn - peas - winter wheat - sugar beets, soybeans - corn - sunflowers, corn. In addition, alfalfa can be sown in certain areas.

On arable land having a slope of 5-8° (255,600 hectares), row crops should not be sown and the crop rotation plans should be of the following type: alfalfa, 3d year sainfoin (153,400 hectares) - 2d year winter wheat (102,200 hectares); on sloping lands the steepness of which exceeds 8° (68,200 hectares of arable land, the crop rotation plans must be of the type: 3d year perennial grasses (sainfoin, sweetclover) - 2d year winter wheat, in which perennial grasses would occupy 60 percent and winter wheat -- 40 percent.

For Moldavia as a whole, it would be desirable to have the following areas for sowing the principal field crops (in thousands of hectares):

- winter wheat and barley -- 400-410; peas -- 115;
- sugar and fodder beets -- 135-140;
- sunflowers -- 150;
- grain corn -- 300-320;
- corn for silage -- 100;
- tobacco -- 70; soybeans -- 60; perennial grasses -- 220;
- vetch-oats -- 60; vegetables -- 80.

Such a structure for the area under crops, following a more precise definition of the zones, will make it possible to develop and introduce scientifically sound crop rotation plans on farms throughout the republic.

However, such a situation must be solved in advance. A concentration of perennial grasses at associations for feed (60,000 hectares of 220,000 hectares sown) and also their placement here mainly on level lands and slopes with a steepness of less than 1° and the use of sowings which are more than 3 years old lower the anti-erosion resistance of crop rotation plans, deprive winter wheat of good predecessor crop arrangements and inhibit the mastering of the crop rotation plans on other farms. Thus, in addition to regulating the structure of the area under crops and also the placement of the crops according to the relief and depending upon their erosion resistance, a solution must be found for the problem of alfalfa use (and also the use of fields following alfalfa) at associations for the production of feed. This will make it possible to accelerate the introduction and mastering of crop rotation plans and this in turn will raise considerably the stability of the yields and improve the campaign against soil erosion.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

UNSATISFACTORY ORGANIZATION OF SEED PREPARATION SCORED

Moscow SOVETSKAYA ROSSIYA in Russian 14 Jan 84 p 1

/Survey by specialists of the RSFSR Ministry of Agriculture: "What Will You Sow, Agronomist?"/

/Text/ "What you sow, so shall you reap"--who, if not farmers, know the validity of this saying. Advanced experience and investigations by agrarian scientists have demonstrated: With constant concern for an increase in soil fertility and favorable weather conditions nevertheless one-third of the increment in the harvest is obtained because of high-quality seeds. Among others, for example, farmers on the Put' k Kommunizmu Kolkhoz in Kasimovskiy Rayon, Ryazan Oblast, have become convinced of this. Last year they gathered 20 quintals of grain and 150 quintals of potatoes per hectare on their poor sandy soil. Seeds determined a great deal there. They were prepared for spring as early as January.

Farms in Leningrad, Kaliningrad, Bryansk, Moscow, Kursk and Volgograd oblasts have established a reliable basis for the future harvest. All seed reserves meet the requirements of the first and second seed categories here.

At the same time, a number of kolkhozes and sovkhozes have not learned their lessons from the failures of past years and are slow with the preparation of seeds. The following lag in this work: Amur, Irkutsk and Yaroslavl oblasts and Krasnoyarsk Kray.

The inefficient utilization of seed cleaning equipment and the poor organization of labor are the basic reasons for this. For example, only 42 percent of the seed cleaning centers and 40 percent of the seed cleaning machines operated in Amur Oblast last December.

Seed cleaning is organized in an extremely unsatisfactory manner on the Ver-nyy Put' Kolkhoz and on the Kolkhoz imeni Kalinin in Tayshetskiy Rayon, Irkutsk Oblast and on Yesinskiy, Teyskiy and Troitskiy sovkhozes in Krasnoyarsk Kray. In the Buryat and Yakutsk ASSR and in Astrakhan and Novosibirsk oblasts a large quantity of seeds have a high moisture and drying equipment is utilized poorly.

Nor must farmers forget the preparation of seeds of perennial grass, which ensure the production of high-grade feed for animal husbandry. Perennial grass occupies more than 15 million hectares of arable land in the Russian

Federation. A total of 62 percent of such sowings are in the nonchernozem zone. Farms in Leningrad, Moscow and Sverdlovsk oblasts have stocked grass seeds in terms of their full need for them. However, kolkhozes and sovkhozes in Vladimir Oblast, for example, are provided with seeds only at the rate of 82 percent and in Kirov Oblast, 60 percent.

Kirov, Gorkiy and Kalinin oblasts greatly lag in the preparation of perennial grass seeds.

Time is pressing farmers. It is necessary to organize a two-shift operation of all seed cleaning machines, to prepare efficient schedules of delivery of seeds to the places of cleaning and to place all these operations under strict control.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

EFFICIENT PREPARATION FOR SPRING SOWING CAMPAIGN URGED

Moscow SEL'SKAYA ZHIZN' in Russian 17 Feb 84 p 1

/Article: "Sowing Will Soon Be Here!"/

/Text/ One can count the days before the beginning of calendar spring. All the workers of the country's agroindustrial complex take energetic measures to more rapidly and better prepare themselves for sowing--the most crucial stage in the fight for the harvest of the fourth year of the five-year plan. A great deal has already been done in this direction. But the chief thing is ahead. It is necessary to complete the set of winter agrotechnical measures in an organized manner and to create reliable prerequisites for a prompt and high-quality performance of spring field operations, increase in the yield of fields and planned output and state purchases of grain and other products. The decisions of the December (1983) Plenum of the CPSU Central Committee, the appeal by the CPSU Central Committee to all voters and the provisions and conclusions concerning the development of our economy set forth in the speech by Comrade K. U. Chernenko, general secretary of the CPSU Central Committee, at the extraordinary plenum of the Central Committee of the party urge rural workers to this.

The forthcoming spring sowing is the most important economic and political campaign, for the successful execution of which party organizations should mobilize the efforts of farmers and all workers of the agroindustrial complex and of Soviet public organizations. Now, on the eve of spring, it is necessary to concentrate attention on the most urgent areas of agricultural production and on the performance of operations connected with the establishment of the foundation for the harvest. First of all, however, it is necessary to ensure a correct disposition of personnel at farms, brigades, links and units, that is, where the fate of the sowing campaign is decided. The duty of party organizations is to expand an efficient competition among the collectives of machine operators for the most rapid conclusion of the preparation for and exemplary execution of sowing, the overfulfillment of shift norms by them and the attainment of an excellent quality on every technological operation.

Precisely where organizational and educational work in collectives is well organized and where there is a creative approach to the solution of current problems, success is achieved in the utilization of material and technical resources, labor productivity growth and increase in the yield of every hectare

of land. The Don Gigant Sovkhoz gathered an average of 32.5 quintals of grain per hectare during 3 years of the five-year plan. Plans have now been made here to exceed this indicator and to obtain no less than 80,000 tons of grain. On the farm thorough care of winter crops is now implemented, seeds of spring crops have been brought up to the first category of the sowing standard, equipment has been repaired and organic fertilizers are delivered to fields. In the Kuban the Kanev Pobeda Kolkhoz is fully ready for sowing, in the Crimea, the Krasnogvardeysk Kolkhoz imeni 21 S"yezda Partii and in Kazakhstan, the Iliyskiy Sovkhoz. There are right-flank competitions in every republic, kray and oblast. Following their example, the collectives of all farms and subdivisions of the agroindustrial complex must implement a set of additional measures ensuring the performance of spring sowing in a high-quality manner on optimum dates.

Special concern for seeds must be manifested. Basically, a sufficient quantity of seeds has been stocked and their preparation and storage have been organized better. In the Ukraine 90 percent of the seeds of grain and pulse crops have been placed in the first category of the sowing standard. The quality of seeds has been improved markedly on Saratov, Ulyanovsk and Orenburg farms. Unfortunately, this cannot yet be said about many kolkhozes and sovkhozes in Krasnoyarsk Kray and Kemerovo and Kirov oblasts, where a significant part of the seeds does not yet meet the requirements of sowing standards. Intensifying the work at warehouses and storage facilities, as many seeds as possible must be brought up to the first category, possessing a high germinative capacity and giving a marked increase in the harvest. For the time being, there are not enough of them, especially on farms in the North-West, Volgo-Vyatka and central economic regions. It is necessary to conclude exchange operations as quickly as possible and to replenish the stocks of durum wheat, buckwheat, millet, pulse crops and grasses. Not a single quintal of seeds should be poured into seeders without the appropriate presowing treatment.

Managers of farms and of all the subdivisions of the agroindustrial complex are called upon to take decisive measures to increase the fertility of land and to intensify the yield of every hectare. There are sufficient possibilities for this. First of all, it is necessary to actively introduce scientifically substantiated farming systems and rational crop rotations and to improve the crop structure by expanding the areas of highly productive crops, especially corn, guaranteeing an increase in the gross yield of products and raw materials.

The level of production of grain, potatoes, vegetables, feed and all farm products depends to a considerable degree on an efficient application of mineral fertilizers and placement of the maximum quantity of organic fertilizers in soil. A great deal of effort in this direction is made in Belorussia, Moscow Oblast and the Mari ASSR, where 12 to 20 tons of humus and compost per hectare of arable land have been delivered for the new harvest. It is important to continue this work with a view to raising the fertile strength of land everywhere. Kolkhozes and sovkhozes are called upon to implement thorough care of winter fields. This involves topdressing crops and protecting them against ice crust, heaving and other unfavorable effects.

In the situation that has been created work on moisture accumulation acquires special importance. Good snowfalls occurred in a number of zones. To retain winter precipitation, to regulate the flow of melt and rain water and to replenish moisture reserves with all the available means implies the creation of favorable conditions for the growth and development of plants during the vegetative period. Reclaimed land should give guaranteed output.

The forthcoming spring sowing will be a serious test for the new bodies for the management of agriculture and all the workers of the agroindustrial complex. It is necessary to complete equipment repairs as quickly as possible, to speed up the deliveries of spare parts and fuel, to staff brigades and links with experienced personnel, to introduce cost accounting and the collective contract and to increase the interest of every machine operator in the attainment of high end results. Everywhere it is important to create a business-like atmosphere and to place a barrier against any manifestations of mismanagement, laxity and violations of labor and technological discipline. Party organizations must give a fundamental evaluation to the attempts by individual managers to cover inactivity with references to bad weather.

Time is pressing. The duty of the workers of the agroindustrial complex is to be fully ready to meet and successfully carry out spring sowing and to grow a high harvest everywhere.

11,439
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MAJOR CROP PROGRESS AND WEATHER REPORTING

QUALITY INSPECTION OF SEEDS BEFORE SOWING ADVOCATED

Moscow PRAVDA in Russian 20 Jan 84 p 1

Article: "Basis for the Harvest"

Text Winter is at its height and grain growers more and more often visit seed storage facilities in order to check how grain stored for the spring wedge "feels." The day when spring will summon them to the field is not far. The crucial season, which largely determines the fate of the harvest, is approaching.

Preparing themselves for spring, the workers of the agroindustrial complex direct their efforts toward a successful implementation of the decisions of the December (1983) Plenum of the CPSU Central Committee. They expand the socialist competition for an increase in the yield of fields and in the productivity of sections and try to raise labor productivity, to lower production costs and to more effectively utilize the funds allocated for the development of agriculture. For example, grain growers on the Krasnoye Znamya Kolkhoz in Rakityanskiy Rayon, Belgorod Oblast, on the Kustanay Sovkhoz imeni Kozlov and on many other farms have decided to complete the preparation for sowing in a short time and to sow only high-quality seeds on fields. To maintain the initiative of advanced collectives and to even more actively expand the competition for an exemplary preparation for spring work--these are some of the urgent tasks of local party and Soviet bodies, councils of agroindustrial associations and trade-union and Komsomol organizations.

The Food Program envisages significantly increasing the efficiency of agricultural production. For grain growers this means to improve the standard of farming, to strictly observe the requirements of agrotechnology, to efficiently utilize arable land, machines and fertilizers and to apply advanced methods of organization and remuneration of labor. The experience of advanced workers confirms that high harvests are attained precisely on this basis. However, some farms, being under the same conditions as advanced workers, in no way can be on a level with them. The reason lies primarily in the fact that they poorly study the best experience and inefficiently utilize internal production resources. During the time remaining until the departure to the field it is necessary to implement additional measures in order to place the achievements of science and advanced practice at the service of farming and to determine specific ways of increasing the yield.

Good seeds are some of the basic potentials for an increase in the gross output of grain and for a replenishment of the country's grain resources. The necessary quantity of seeds of grain and pulse crops has been stored on kolkhozes and sovkhozes. Farmers in Saratov, Orenburg, Chelyabinsk and other oblasts have stocked sufficient wheat for sowing. At the same time, proper attention has not been paid to this important work in some places. Farms in Uzbekistan, Tajikistan, Armenia and Kemerovo, Kirov and Yaroslavl oblasts have not fulfilled the plan for the storage of seeds. On many kolkhozes and sovkhozes there is a shortage of seeds of pulse crops and soybeans. The readiness of seed stocks is determined by their quality. Grain growers in the Ukraine, Belorussia, Lithuania, Moldavia and Tambov and Voronezh oblasts have prepared high-quality grain for sowing. However, such a situation does not exist everywhere. Many seeds have not yet been brought up to high sowing standards on farms in Kalinin, Novosibirsk and Kurgan oblasts.

Last fall many farms in the Urals, Siberia and Kazakhstan harvested grain in bad weather. Therefore, a significant part of the grain placed in storage facilities was substandard. For example, in Krasnoyarsk Kray and Irkutsk and Tyumen oblasts many seeds do not meet the requirements of the sowing standard. Every grain cleaning unit and every drier must now operate at full capacity. It is important to accelerate the exchange of substandard seeds for high-grade ones and to promptly complete their delivery to farms.

A number of rayons are slow with the check of seed stocks. Perhaps it was not possible to do this on time? No, this is not so. A wide network of state seed inspectorates, in which a large detachment of specialists work, operates in the country. They have the necessary equipment making it possible to complete the check on the quality of seeds a long time before the beginning of sowing. Agroindustrial associations together with the agronomic service of kolkhozes and sovkhozes and state inspectorates are called upon to more strictly control the course of seed preparation and to prevent the utilization of seeds for other purposes.

It is not the first year that some reports on the fulfillment of socialist obligations for the sale of grain by farmers note the following: "The plan for the sale of hulled crops was underfulfilled." A number of special measures stimulating an increase in buckwheat and millet production have been taken recently. A successful cultivation of hulled crops now depends only on the initiative of Union and republic ministries of agriculture, agroindustrial associations and farm managers and specialists. On many kolkhozes and sovkhozes to this day buckwheat and millet fields have not been determined and contract links have not been organized. Whereas on farms in Altay and Stavropol krays the seeds of these crops have been fully stocked, in Ryazan, Smolensk and Perm oblasts they are sufficient only for part of the crops. What is to be sown on fields here?

The practice of advanced farms convincingly points out that seeds of highly productive regionalized varieties give a significant increase in the harvest. However, the same practice indicates that a great deal of grain is not gathered where there is not much concern for the introduction of high-grade seeds. Councils of agroindustrial associations should place this work under unremitting control and give lagging farms competent help in the improvement in seed breeding.

The preparation for spring and sowing are serious tests for rural party organizations and checks on their ability to lead collectives of grain growers. Party members are called upon to set an example of shock labor, of a conscientious attitude toward work and of an active study and assimilation of the experience of advanced workers for all the participants in the competition. It is important that they keep the entire set of operations in their field of vision and see to it that farmers more rapidly complete the preparation of seeds and equipment and deliver fertilizers and fuel. This will make it possible to carry out field operations at the best time and on a high agrotechnical level.

It is not for nothing that seeds are called the basis for the harvest. The grain grower always strives to store and place choice grain in soil, knowing that it gives strength to the ear. In spring arable land awaits choice seeds. For this it will show its gratitude to the farmer with a substantial harvest and help him to increase grain production.

11,439
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MAJOR CROP PROGRESS AND WEATHER REPORTING

SHORTCOMINGS IN PREPARATION FOR SPRING FIELD WORK NOTED

Moscow SOVETSKAYA ROSSIYA in Russian 11 Mar 84 p 1

/Article by V. Udachin, SOVETSKAYA ROSSIYA correspondent, Krasnodar Kray:
"Field Repair" /

/Text/ On many farms spring work is already going on. Farmers in Anapskiy, Krymskiy and Kurganinskiy rayons are completing the sowing of vegetable peas. Machine operators in Slavyanskiy and Krasnoarmeyskiy rayons have sown lucerne. Units in the piedmont zone have gone out to fields and all winter crops have been topdressed with fertilizers from airplanes. Without delay, utilizing the slightest possibility, machine operators in Kanevskiy Rayon are engaged in the "repair" of winter crops, to which the high readiness of equipment contributes.

Unfortunately, there are also shortcomings. They are especially costly during the spring season, when every hour counts. Thousands of tractors, including many energy saturated ones, have not yet left shops. Workers at the enterprises of the Kray Sel'khoztekhnika Association are not fulfilling their obligations to the main partner in the agroindustrial complex--farmers. Tractors are in repair in excess of the established time norms. The plan for the first quarter for the preparation of complex machines has been disrupted.

Nor are farmers ready for spring everywhere. In Novopokrovskiy Rayon only 14 percent of the barley seeds are of the first category and in Kushevskiy, Abinskiy and Apsheronskiy, only one-half. On some sovkhozes seeds were stored together with fodder grain and on the Kolkhoz imeni Kirov in Tikhoretskiy Rayon farmers began to sow them without first cleaning them from pests. For a region of a high standard of farming such errors are intolerable, as is the shortage of seeds of regionalized varieties for the undersowing of grain crops, which has occurred in a number of rayons.

Again there are irritating talks about the shortage of fuels and lubricants. At the same time, the attitude toward them in no way can be called efficient. Instead of accumulating fuel reserves for spring, a number of kolkhozes and sovkhozes burned fuel in boiler furnaces, sold it to outside organizations and lowered its availability in reporting, owing to which they created an artificial shortage. The USSR Ministry of the Petroleum Refining and Petrochemical Industry also did a disservice to Kuban grain growers. The point is that until this year Krasnodar and Tuapse petroleum refining plants have produced

gasoline of the A-76 brand for the kray's needs. However, since the beginning of the year the Krasnodar Plant has stopped the production of this type of gasoline and the Tuapse Plant has begun to produce it in quantities that do not even meet the needs of one Sochi resort. All hope lies in imported gasoline, but there is not enough of it. Only one-fifth of the tanks that, according to the plan, the Kuybyshev and Tambov administrations of the RSFSR State Committee for the Supply of Petroleum Products should have sent to the kray in January and February have arrived.

11,439
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MAJOR CROP PROGRESS AND WEATHER REPORTING

INSUFFICIENT DELIVERY OF FERTILIZERS TO FIELDS SCORED

Moscow SEL'SKAYA ZHIZN' in Russian 6 Mar 84 p 1

/Article: "For the Growth of Harvests" /

/Text/ Every year confirms the simple truth that, where people work well with land, even under unfavorable weather conditions, high and stable harvests are obtained. Organic fertilizers--an accessible and cheap source and, most important of all, one of the few for the reproduction of humus--the basis for any soil--have proved to be the strongest factor in the increase in the production of plant products.

This must be recalled, because recently specialists have more and more often arrived at the depressing conclusion that the humus balance in the soil of a number of regions is becoming negative. The losses of the organic substance are not compensated properly. To reverse this process is the most important duty of the agricultural services of kolkhozes, sovkhozes and workers of the Scientific Production Association for Agrochemical Services to Agriculture and other organizations of the agroindustrial complex. This direction was reflected in the USSR Food Program.

This task is being accomplished. A total of 1,125 billion tons of organic fertilizers were delivered to fields last year alone. This is more than ever. Belorussian farmers carted out 94.6 million tons of manure and composts, or the increase comprised 18 percent as compared with the preceding year. Peat, which is transmitted through farms, is widely used for the preparation of composts in Belorussia. The obtained fertilizer is noted for a high quality. On most farms manure is stored on special grounds, or at the edges of fields in big, well-packed stacks. It is applied at the best time.

Present organic fertilizer factories operate in Leningrad Oblast and, on the average, 20.8 tons of these fertilizers per hectare of arable land are applied here. As a result, areas of soil with a positive humus balance are increasing. The dose of organic fertilizers in Moscow and Ivanovo oblasts has increased markedly. Fertility routes on Bryansk farms are now lively from dawn until dusk. And not only here. Manure and composts for the future harvest are delivered ahead of schedule in the Mordovian and Tatar autonomous republics and Penza, Voronezh and Ryazan oblasts.

At the same time, it must be admitted that insufficient organic fertilizers are carted out to fields and for this reason the doses of their application to soil are small. Throughout the Russian Federation they are only 3.8 tons per hectare and in such oblasts as Volgograd, Orenburg, Novosibirsk and some others, 1.3 to 1.7. To this day insufficient attention is paid to the quality of preparation and application of fertilizers. Often manure is delivered to fields in an almost "fresh" form--together with weed seeds. Bulldozers and various drag harrows are still used for its application and here and there crops are "burned out." It is time that managers of rayon agricultural associations and the agronomic service, finally, evaluate fundamentally such cases and rectify the situation. We must avoid inertia in this matter, taking into consideration the exceptional and still irreplaceable value of organic fertilizers in the increase in the fertility of fields and in the intensification of farming.

Now, during the first days of spring, a reserve of mineral fertilizers for the topdressing of plants and for their application to soil before sowing and together with seeds to rows is created on every farm. Against the background of organic fertilizers this creates a guarantee for the harvest of all crops. However, there are still disruptions in the realization of the task set. A number of enterprises of the Ministry of Mineral Fertilizer Production delay the shipment of mineral fertilizers. A total of 41,800 tons of the active substance of nitrogen fertilizers and 39,900 tons of phosphorus fertilizers were underdelivered in January alone. The main debtors include the Tol'yatti-azot Production Association, Rossosh and Balakovo chemical plants and the Drogobuzh Nitrogen Fertilizer Plant. Time is not waiting. The debt must be returned on time and more mineral fertilizers for the sowing campaign must be given.

Field liming is an urgent problem. Despite the fact that the volume of this work has increased, the areas of acid soil are reduced very slowly and in some places are even increased. Mineral fertilizers on such soil work at half the strength and farmers do not obtain the expected effect from their application. For example, in Novgorod Oblast the total expenditures on the application of mineral fertilizers are about 35 million rubles annually and, as a result of the increase in the harvest, only 20 to 25 million rubles are obtained. There is a different picture in the republics of the Soviet Baltic Area, the Mari ASSR and Moscow and some other oblasts. Here there is a marked reduction in the area of acid soil owing to the 4- to 5-year cycle of liming with the application of optimal ameliorant doses.

Throughout the country soil is deoxidized slowly. The shortage of lime materials is the main reason for the low rates of work. The enterprises of the USSR Ministry of Mineral Fertilizer Production, the USSR Ministry of the Construction Materials Industry, the USSR Ministry of Ferrous Metallurgy, the USSR Ministry of the Food Industry and others, which do not fulfill the plans for the delivery of chemical ameliorants, let us down. The situation needs to be rectified resolutely.

The agrochemical service itself can do a great deal in the localities. The experience of Ternopol Oblast, where the development of local limestone deposits and a quality preparation of the defecated juice of sugar plants have

been organized in a short time, attests to the above. The volume of application of lime materials on farms has almost doubled and it has been possible to lower soil acidity on substantial areas.

The forthcoming spring and summer season must become another important stage in the activity of the organizations of the Scientific Production Association for Agrochemical Services to Agriculture. They are called upon to greatly intensify the work on an overall cultivation of fields. This concerns primarily clean fallow, where it is possible to lime soil at any convenient time and to apply organic and mineral fertilizers. It is difficult to overestimate the importance of this measure. As a rule, on capitally repaired fields the yields of winter wheat are 8 to 9 quintals per hectare higher. The renovated hectares "work" for the harvest during the entire crop rotation.

An increase in land fertility is the urgent task of kolkhozes, sovkhozes and all the subdivisions of the agroindustrial complex. Its successful accomplishment will help to raise the harvests and gross output of agricultural products.

11,439

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MAJOR CROP PROGRESS AND WEATHER REPORTING

MISMANAGEMENT IN AGRICULTURAL EQUIPMENT REPAIRS DECRIED

Moscow SOVETSKAYA ROSSIYA in Russian 19 Feb 84 p 1

Survey by workers of the RSFSR Ministry of Agriculture: "Tractors Are Going out to the Field"

Text In practice, field work has begun in North Caucasus in February. Machine operators are cultivating and leveling the fall plowed area and top-dressing crops. In Krasnodar Kray and North Osetia mineral fertilizers have been applied on more than one-half of the areas.

Kolkhozes and sovkhozes in North Caucasus and then in the central chernozem area are beginning to sow earlier than others. Are these two regions well prepared for spring?

Krasnodar Kray and Belgorod and Rostov oblasts are ahead.

Equipment repair dates have been postponed to a considerable extent until fall. Therefore, in Krasnodar Kray and Rostov Oblast as of 1 January sowing and soil cultivation equipment basically was in good working order. The people of Krasnodar Kray unitized it and issued working sowing plans and technological maps for brigades and links. The people of Belgorod Oblast skillfully organized mutual checks and established operations groups for providing assistance to kolkhozes and sovkhozes in Sel'khoztekhnika associations, which included highly skilled specialists and representatives of the State Inspectorate for Supervision of the Technical State of the Machine and Tractor Pool.

At the same time, things are not going well everywhere. Equipment repairs are poorly organized in Primorsko-Akhtarskiy and Starominskiy rayons in Krasnodar Kray. On the Sovkhoz imeni Shevchenko at one time agricultural machines were not even cleaned of dirt, the labor of repairmen was organized primitively, the unit for the washing of parts did not operate and the shop was not heated for almost the entire winter. V. G. Turovskiy, chief engineer of the rayon agricultural administration, and A. V. Obraztsov, manager of the Rayon Sel'khoztekhnika Association, are guilty of mismanagement. The council of the rayon agroindustrial association imposed strict penalties on them.

In Dagestan 10 percent of the seeders and about 8 percent of the plows and cultivators are still waiting for repairmen. In many rayons of this autonomous republic councils of rayon agroindustrial associations poorly utilize

the rights granted them and do not place the necessary requirements on the managers of the enterprises and associations of Sel'khoztekhnika. Khasavyurt and Kizlyar stations for the technical servicing of energy saturated tractors do not cope with the plans. As a result, one out of five machines is out of service all year round. Technical servicing stations could be reinforced with the specialized shops of Sel'khoztekhnika, but 2 or 3 months are spent on the repair of one powerful tractor here.

Special services for the machine yard are now being established everywhere. This will make it possible to more widely utilize advanced forms of organization and remuneration of labor in repairs. Unfortunately, the new opportunities are not utilized in the same way. Whereas more than 100 repair links have been transferred to the collective contract in Rostov Oblast, only one such link has been established in Dagestan. There are few of them in North Osetia, Kabardino-Balkaria and Checheno-Ingushetia.

Primarily quantitative indicators have been discussed until now. Qualitative indicators introduce serious corrections for them. Lipetsk and Kursk oblasts lag in the quality of repairs.

In Lipetsk Oblast, if we are to judge from reports, by the beginning of this year all agricultural machines have been put in good working order. The surveys, in which the specialists of the State Inspectorate for Supervision of the Technical State of the Machine and Tractor Pool participated, have shown: In practice, one out of five sowing and soil cultivating units is not ready for operation.

On the Kolkhoz imeni Krupskaya last year, owing to technical malfunctions, the total downtime of tractors exceeded 2,000 days. It seems that they will also be considerable now if repairs are made in this way. There is a shortage of fitters and repairmen-foremen and those who are available work without making much effort. They have no norms and are not given assignments. One may not appear at all at the shop and no one will notice this.

There are also many such cases of lack of organization in Kursk Oblast, where 22 percent of the checked tractors had to be sent for repeated repairs. On many farms the attitude toward equipment is worsened year after year. More than 10 years ago the Vpered Kolkhoz in Oboyan'skiy Rayon was the first in the oblast to master the advanced method of technical servicing of tractors and agricultural equipment. People came from everywhere to study there. The initiators themselves have now forgotten their good undertaking and the quality of repairs has again deteriorated.

Some people succeed in creating a semblance of well-being in reports. But spring will come and very soon it will become obvious who, in fact, has worked and how.

11,439
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MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

UNSTABLE WINTER WEATHER--Moscow (TASS)--Winter hovers over the ice covered ground, in no way can it settle down--how many times, how many years! Weather forecasting is on a high level. Waves of intensifying and slackening cold weather were promised in our regions--and so it is. In many regions of the Russian flatland during the day thermometer columns are not far from the zero mark. It looks as if they are waiting: They do not hurry up and do not rush down--basically, they manage with the "10 point" scale. Seas are waiting for stable weather, but, surprisingly, air flows seem to have come to an agreement: There was a complete uniformity in the Baltic and Black sea areas the other day: It was +4 degrees. Now it is warmer in the north than in the south. The Atlantic Region still has a dispute with the Arctic Region. It seemed as though no forces would overcome snow, which like January snow, lay in Moscow's vicinity, before spring. Not so! A breath of spring came from the Atlantic Region. The weather broke the century's heat record--as though there were no wicked snow storms. December is the "cap of Russian winter." It is supposed "to cool the earth for the entire winter," but at its zenith it did not venture with the former boldness of cold weather. From the nature of the weather in the last few years an impression has been created that the beginning of winter is warmer. Not a single change of seasons was without surprises. Records of absolute maximums of air temperature for a specific date of the month or another were set in every December in 1979-1982. The beginning of winter will be sparing of light, but it will gladden the northern hemisphere with the beginning of the rebirth--solar rotation. On 22 December at 1300 hours 30 minutes according to Moscow time our heavenly body will reach the point of the winter solstice and then will turn to summer. /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 17 Dec 83 p 47 11,439

THUNDERSTORMS IN MOSCOW--The residents of Moscow have already become accustomed to the instability of this winter and even the spring-like noisy shower outside the windows did not surprise many people. However, when exceeding its "voice," peals of thunder burst forth, all those who heard them involuntarily rushed to the windows: Is this really a thunderstorm? "Yes, it is," A. D. Chistyakov, head of the laboratory for weather forecasts for Moscow and Moscow Oblast of the USSR Hydrometeorological Center, confirmed. "For weather forecasters there is nothing unusual in this phenomenon. Although it rarely thunders over Moscow at this time, our stations record thunders every winter, that is, in December, January and February." This time on 24 January thunder discharges were recorded at meteorological stations at Krylatskoye, the Timiryazev Agricultural Academy, the Exhibition of USSR National Economic Achievements and Leningrad Avenue in the capital. This means that the storm front

has spread quite widely over Moscow. The present winter storm is caused by the fact that the air, which brought us heat from the Mediterranean and the Black Sea and from the Ukraine (thermometers showed +2 degrees at this time), owing to the pressure of the cold air mass going from the south east, began to be displaced upwards. This air "whirlpool" explains why rain alternates with snow and why it thunders outside the windows now. /By V. Zhilyayeva/ /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 25 Jan 84 p 6/ 11,439

ELITE GRAIN SEEDS--Kharkov, 21 Jan (TASS)--The Ukrainian Scientific Research Institute of Plant Growing, Selection and Genetics imeni V. Ya. Yur'yev has completed the delivery of superelite seeds of spring grain crops for farms in the RSFSR nonchernozem zone, the Southern Urals, the Volga Area, West Siberia and Kazakhstan. The khar'kovskaya-46 durum wheat resistant to lodging, shattering and drought enjoys deserved popularity among grain growers in various climatic zones. It is noted for an increased content of protein and gluten. Along with the seeds of this variety farmers have also received the grain of highly productive soft wheats, that is, khar'kovskaya-2 and khar'kovskaya-6, of barley of brewing varieties, millet and corn. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 22 Jan 84 p 1/ 11,439

SHIPMENT OF SUNFLOWER SEEDS--Krasnodar, 12 Feb (TASS)--The All-Union Scientific Research Institute of Oil Crops has embarked on the mass shipment of sunflower seeds for spring sowing. More than 1,000 tons of seeds will be shipped to farms in the Kuban, Don, Stavropol and the Ukraine and to the country's eastern regions. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 13 Feb 84 p 1/ 11,439

NITROGEN TOPDRESSING--Krasnodar--Grain crops in the Kuban steppe have been topdressed with nitrogen on 1,200,000 hectares--most of the winter field. Farmers, utilizing present warm days, apply mineral fertilizers to areas sown with wheat and barley by means of agricultural aviation airplanes and ground machines. /Text/ /Moscow TRUD in Russian 16 Feb 84 p 1/ 11,439

PREPARATION FOR IRRIGATION--Krasnodar, 9 Mar--More than 200,000 hectares, or almost twice as much as last year, have been prepared for irrigation on the kray's farms. The subdivisions of Glavkuban'risstroy, administrations of land reclamation and water resources of the kray executive committee and reclamation detachments of farms have carried out work on the cleaning and repair of the intrafarm irrigation, collector-drainage and discharge network in a volume of more than 12 million cubic meters and have put in order 15,000 hydraulic structures. Water supply irrigation has been carried out on 24,000 hectares. All reclamation operations have been performed in a high-quality manner. /By Yu. Semenenko/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 10 Mar 84 p 1/

IMPROVEMENT IN SEED STOCK--Krásnodar, 30 Jan--Work on raising the category of seeds of spring crops and perennial grass is continuing at kolkhozes, sovkhozes and interfarm enterprises in the kray. The further preparation of the seed stock is being completed. Old varieties and low reproduction seeds are being replaced with new varieties and high reproduction seeds. In practice, all of them meet the requirements of the first and second categories. Only first-category seeds have been procured for the basic sown area of peas, rice, soybeans and sunflowers. A sufficient quantity of high-quality sugar beet seeds has been stocked. Good seeds can now be sown on farms in Anapskiy, Kurganinskiy and Timashevskiy rayons and on the suburban sovkhozes of Krasnodar.
/By Yu. Semenenko/ /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 31 Jan 84 p 1/ 11,439

SPRING SOWING MEASURES--The RSFSR Council of Ministers adopted the decree "On the Tasks of Soviet and Economic Bodies for an Organized Performance of Spring Sowing and Fulfillment of the Plans for the Production and Procurement of Grain and Other Farm Products." The document notes that, as a result of major organizational-political and economic measures, positive shifts have begun to appear in the development of the republic's agrarian-industrial complex and in the increase in the efficiency of work of its links. At the same time, there is a tense situation with the fulfillment of the assignments of the five-year plan for the production and sale of a number of plant products, primarily grain, to the state. The biggest underdeliveries of grain occur in Volgograd, Saratov, Voronezh and Orenburg oblasts and Altay Kray. The plans for the procurement of sugar beets, seeds of oil crops, flax fiber, grapes, fruits and other products have been underfulfilled. This makes it difficult to meet the population's demand for food and appropriate industrial goods. The lag tolerated during the preceding period, as well as the need to ensure an unconditional fulfillment of this year's plans, requires from kolkhozes, sovkhozes, interfarm enterprises, Soviet and economic bodies, ministries and departments the adoption of measures, whose implementation would make it possible to consolidate the positive tendencies attained in the development of agriculture and would guarantee the planned output and the fulfillment of state purchases of grain and other farm products. The RSFSR Council of Ministers determined additional measures for an organized performance of the spring field campaign.
/Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 24 Feb 84 p 1/ 11,439

PREPARATION OF IRRIGATION SYSTEMS--The recently held expanded board of the USSR Ministry of Land Reclamation and Water Resources was devoted to the tasks of water management organizations concerning an efficient utilization of irrigated and drained land in 1984. As was noted in the report by O. B. Katanov, USSR deputy minister of land reclamation and water resources, the yield of reclaimed areas was still low in a number of places. Almost all the republics, except for Uzbekistan, Tajikistan and Azerbaijan, did not attain the planned yield on irrigated land. Through the fault of the operational services of water management organizations, 6,000 wide-cut units were idle at the height of irrigation last year. Special attention was drawn to the need to increase the frequency of irrigation. With due regard for the indicated shortcomings the expanded board adopted the appropriate decisions. The efforts of operational, repair-construction and water management construction organizations are aimed at a prompt execution of work on the preparation of irrigation and drainage systems for the vegetative period of 1984. The socialist

competition of the country's reclamation specialists for an increase in the efficiency of utilization of irrigated and drained land during the new year and for the production of high harvests of all agricultural crops on it is subjected to this. /According to reports by EKONOMICHESKAYA GAZETA correspondent and TASS/ /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 2, Jan 84 p 19/ 11,439

SHORTAGE OF SEEDS--Farms in most of the country's regions have available a sufficient quantity of seeds of spring grain, pulse and a number of other crops. It is gratifying to note the high provision with seeds of perennial grass. A total of 1,397,000 quintals of these seeds are available, which comprises 117 percent of the need. However, not enough seeds of these crops have been stored on a number of farms in Belorussia, Uzbekistan, Kirghizia, Tajikistan and Armenia. Many kolkhozes and sovkhozes in the RSFSR and Kazakhstan are short of buckwheat seeds and farms in Uzbekistan and Tajikistan, of rice and millet seeds. In order to meet the spring of the fourth year of the five-year plan fully armed, it is important that every farm more rapidly procure the necessary quantity of seeds and promptly perform exchange operations with procurement organizations having available seed stocks of various crops. /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 5, Jan 84 p 17/ 11,439

AERIAL FERTILIZER APPLICATION--(TASS)--The spring that has begun demands from farmers special attention to the field that has awakened. In many regions winter grain crops need to be topdressed with mineral fertilizers. Agricultural aviation pilots are rushing to the aid of grain growers. Thousands of airplanes are now circling over fields, dispersing mineral fertilizers, which plants weakened after wintering need sharply. The dry fall and small snow cover have made themselves felt in some regions. "Winged farmers" have begun to apply from the air fertilizers over the fields of the Ukraine, Belorussia and North Caucasus, in the valleys of Central Asia and in some other regions in the country. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 10 Mar 84 p 17 11,439

UNUTILIZED PRODUCTION POTENTIAL--(TASS)--An expanded meeting of the board of the RSFSR Ministry of Agriculture and of the presidium of the republic committee of the sectorial trade union was held on 10 February. The results of 1983 and the tasks concerning the development of the republic's agriculture in 1984 in connection with the fulfillment of the Food Program and increase in the efficiency of agrarian production in the light of the decisions of the December (1983) Plenum of the CPSU Central Committee were discussed. In the report by V. P. Nikonov, RSFSR minister of agriculture, and in speeches it was noted that in the Russian Federation last year the volumes of production and sale of basic field and farm products to the state increased as compared with the average annual indicators of the 10th Five-Year Plan and of the first 2 years of the current five-year plan, production costs were lowered and the financial status of kolkhozes and sovkhozes improved. At the same time, the attained level of agricultural development does not yet meet the imposed requirements and existing possibilities. The measures necessary to attain a fuller utilization of the production potential and of all material, labor and financial resources were discussed at the meeting. The need to stir up the activity of agroindustrial associations, to raise the level of economic work on kolkhozes and sovkhozes and to fulfill major measures for the social development of rural areas was stressed. V. I. Vorotnikov, member of the Politburo of the CPSU Central Committee, chairman of the RSFSR Council of Ministers, took part in the work of this board. /Text/ /Moscow SOVETSKAYA ROSSIYA in Russian 11 Feb 84 p 4/ 11,439

CULTIVATION OF WINTER BARLEY--In the Kuban winter barley annually occupies up to 300,000 hectares and in its yield is not inferior to wheat. Thus, it is an important crop in the production of fodder grain and in the strengthening of the feed base. In the technology of cultivation of winter barley, especially on the heavy soil of the Trans-Kuban, an exceptional role is assigned to basic soil cultivation. The structure and structural composition are regulated by means of it and it has an effect on the entire complex of the living conditions of plants--water, air, heat and food regimes. /Excerpt/ /Krasnodar SEL'SKIYE ZORI in Russian No 9, Sep 83 p 26/ /COPYRIGHT: "Sel'skiye zori", 1983/ 11,439

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LIVESTOCK FEED PROCUREMENT

POOR QUALITY OF FEED MIX CONCENTRATES IN UKRAINIAN HOG, POULTRY COMPLEXES

Kiev SIL'S'KI VISTI in Ukrainian 1 Feb 84 p 2

[Article, published under the heading "Problems of the Branch," by Candidate of Veterinary Sciences, head of the Ukrainian Zonal Scientific Testing Laboratory of the USSR Ministry of Agriculture All-Union Scientific Testing Institute of Veterinary Medicine, A. Zinchenko: "The Quality of Feed Mix Concentrates Remains Poor for Hog Complexes and Poultry Farms. Why?"]

[Text] The feed mix concentrate plants of the UkrSSR Ministry of Procurement are supposed to provide poultry farms and large hog raising operations in this republic with full-value feed mix concentrates, balanced with all necessary constituents. A number of serious deficiencies were revealed, however, during numerous inspections to determine whether prescribed standards are being observed in the manufacture of these feed mixes, deficiencies which lead to diminished product quality.

At the end of last year we inspected the Grakovskiy Feed Mix Concentrate Plant in Kharkov Oblast (F. I. Ushakov, general manager), which supplies feed mix concentrates to the Grakovskiy Hog Raising Complex.

They had performed a major overhaul of the plant and had radically improved the manufacture of product for all swine age and productive groups. The enterprise works in close coordination with specialists at the complex. Feed mix concentrate plant performance, however, is hindered by unsatisfactory, somewhat disorganized acquisition of raw materials in conformity with allocation schedules of the UkrSSR Ministry of Procurement, particularly powdered skim milk, industrial and food-grade fat, feed yeast, fish meal and tankage, as well as failure to coordinate operations with the Kharkov Oblast Procurement Administration.

Just in the second and third quarters 1,232 tons of powdered milk was hauled to the enterprise, with a requirement of 734 tons, which resulted in compaction, lumping, and diminished product quality in all indicators, including bacteriological.

Nor did they do a better job of disposing of surplus quantities of powdered milk at the enterprise. The inspection revealed a stock of more than 40 tons which had been hauled to the plant in April, May, and June of last year from the Vladimir-Volynskiy Dairy Combine, the Volchansk, Pervomaysk, and Sakhnovshchina

creameries, and from the Starobelsk Whole Milk Plant. Of course using powdered milk beyond its freshness date can make young pigs sick.

Coarse soy meal is also delivered to the enterprise on a sporadic schedule. Last year the plant received 2,043 tons in the third quarter, with a requirement of 600 tons, as a consequence of which most of the silos were filled up, and there was no place to store other raw materials. One should also consider a peculiarity of coarse soy meal: it tends to become compacted in silos.

We must state at this point that the Republic Information-Computer Center regularly delays the issuing of formulations to the Grakovskiy Cereal Products Combine for the feed mix concentrate plant.

Last year there occurred substitution of constituents for 8 scheduled formulations at this enterprise: SK-3 -- 14 times; SK-10 -- 8 times; SK-11 -- 15 times; SK-19 -- 14 times; SK-24 -- 15 times; SK-29 -- 23 times; SK-34 -- 19 times; SK-39 -- 6 times. Thus on the basis of 8 scheduled formulations, in the course of the year the Republic Computer Center calculated 114 experimental and commercial formulations, and 42,900 tons of feed mix concentrates were prepared for the hog raising complex with altered formulations.

The scheduled formulations were changed and calculated by this computer center because of a lack of some raw-material constituent (from 1 to 4 in a single formula). For example, in formulation SK-3/9 the oats, coarse sunflower meal, fish meal and tankage, and in SK-3/12 and SK-3/13 the coarse sunflower meal, fish meal and tankage, were entirely replaced by coarse soy meal and nutrient yeast. Thus change occurred in the content of crude protein of plant, animal, and microbiological (yeast) origin.

A fair amount of the raw materials received for preparing feed mix concentrates is inappropriate. The production laboratory determined in particular poor-quality crude animal protein supplied by the Chuguyev, Kharkov, and Rogan meat packing combines.

We should state that the feed mix concentrate plant lacks a storage facility for industrial-grade and edible fats, so that they are stored throughout the year in the open air, and in summer go bad due to the high temperatures. The level of mechanization of labor-intensive processes is poor at the enterprise. Almost all jobs are performed manually.

A number of substantial deficiencies were also discovered during an inspection of the Belgorod-Dnistrovskiy Feed Mix Concentrate Plant in Odessa Oblast. In particular, grinder operations are poor, there is a lack of screening equipment on the yeast line, and proper conditions of storing crude protein and minerals are not observed. Multiple-constituent by-weight batching machines showed considerable deviations in weighing constituents in preparing feed mix concentrates. Equipment was inadequately cleaned in shifting to production of feed formulations for broilers following preparation of feed mix concentrates for fish, which contain up to 35 percent coarse cotton meal. As we know, this contains (hosipol), which is toxic to poultry.

It was also established that the feed mix concentrate plant does not prepare a 5 to 7 day supply of feed for the Belgorod-Dnistrovskiy Poultry Farm, and

therefore the poultry are fed "from hand to mouth," as they say, and the laboratory is unable to test feed for toxicity. In addition, this plant does not prepare prestarter mixes for 1 to 4-day broilers.

The author of this article was employed for many years in the Ptitseprom system and recalls how a contractual agreement was reached at one time between the Pivdenna Poultry Farm in Crimean Oblast and the Kerch Feed Mix Concentrate Plant. According to the terms of the agreement, the farm placed orders with the plant 10 days in advance for feed mix formulations for different poultry age and productive groups, formulated to obtain maximum productivity.

This contractual agreement provided for material incentive reward for Kerch Plant personnel on the basis of the productivity obtained by the poultry farm.

Material incentive for both enterprises was a significant factor in boosting poultry productivity to such a level that the Pivdenna Poultry Farm became one of the republic's leaders. In time, for whatever reason, this collaborative effort between the two workforces came to an end. A pity!

Perhaps one should discuss the question of the expediency of employing such an arrangement. This would pursue a single aim -- to boost hog and poultry productivity by achieving a radical improvement in the quality of the product turned out at feed mix concentrate plants, and to provide material incentive both for animal husbandry workers and workers in the feed mix industry.

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LIVESTOCK

PROBLEMS IN SPECIALIZATION OF BEEF CATTLE RAISING IN KAZAKHSTAN

Alma-Ata NARODNOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 1, Jan 84 pp 33-36

Article by S. Kasenov, senior scientific workers at the Tselinnyy Branch of KazNIIEOSKh: "Interenterprise Cooperation in Beef Cattle Husbandry" /

Text Production specialization and concentration based upon interenterprise cooperation constitute the principal trends for agricultural development during this modern stage.

The combining of natural factors with the zonal economic conditions found in Tselinograd Oblast made it possible to transform this region into one of the chief regions for the specialized production of beef. On 1 January of last year, the cattle density per 100 hectares of land area at spetskhозes /specialized farms/ throughout the oblast was 11.6 head, compared to 6.1 at non-specialized sovkhozes, with the fixed capital being 13,900 and 12,300 rubles respectively. In 1982, each spetskhоз produced an average of 575.5 tons of beef -- twice as much as the average for all other sovkhozes in the oblast.

Increases are taking place in the capital-labor ratio, the power-worker ratio and in the level of mechanization and these are ensuring expanded reproduction at the specialized farms. A great amount of attention is being given to feed production -- meadows and pastures are being watered and the sowings of forage crops are being expanded. The selection of the best methods for developing these farms has produced definite positive results. Even over the past 3 years, considered to be unfavorable for agriculture from the standpoint of weather conditions, the dynamics of the efficiency of beef cattle husbandry have on the whole improved at specialized farms throughout the oblast and this is borne out by the direction being followed in the intensification of production operations.

This is also confirmed by the experience of leading specialized farms, particularly the Yermentauskiy Sovkhoz. Created on the basis of a large grain sovkhoz in 1976, it has during the period of its existence accepted more than 50,000 young bulls for maturing and fattening, thus ensuring the sale to the state of more than 20,000 tons of meat. Of more than 100,000 hectares of land, 35,000 hectares are arable land, 3,700 hectares -- haying land and approximately 70,000 hectares -- pasture land.

The average annual value of the fixed capital is more than 22 million rubles, including fixed capital of an agricultural nature -- more than 17 million.

At the beginning of last year, there were 9,324 head of cattle at the spetskhoz, of which number 188 were cows. The increase in output volume during the year was raised to 1,700 tons. Animal husbandry produces considerable profit, with the greatest amount being realized from the sale of beef (3,897,100 rubles worth over the past 3 years).

Beef cattle husbandry requires a strict technology and skilfully organized production operations. Here importance is even attached to the placement of the individual subunits. Of 27 of the complex's facilities, almost one half are buildings which were erected using light weight structures. Depending upon the availability of labor resources, they are assigned to the central farmstead or to departments of the sovkhoz. The 1st department contains 3,200 young bulls, the 2d and 4th -- 600 each, the 5th -- 2,500 and the complex itself -- 2,800 head of cattle. In the winter almost all of the animals (with the exception of young stock born during the current year) are maintained in semi-open facilities having deep permanent bedding. In a capital building of the complex, the young bulls are maintained in two units, each of which is divided into seven sections (150 animals in each). The fattening areas are established in two sections (250 young bulls in each). The feed is issued by means of feed distributors with the aid of an MTZ-50 tractor and in all areas there are units for watering the animals with electrically heated water.

Calves which are still being fed milk are grouped in batches of 10-12 and maintained "independently" by groups in two calfhouses. The microclimate in these facilities is maintained by means of heating boilers and forced exhaust ventilation.

The ration is of utmost importance in the fattening of young stock. A chief concern is that of composing these rations on a differentiated basis, taking into account the live weight and the age of the animal. Indeed, the younger the animal, all other conditions being equal, the fewer the feed expenditures per unit of weight increase. Thus the daily feed for young bulls weighing less than 100 kg consists of 2 kg of hay, the same quantity of straw, 3 kg of silage and 1 kg of concentrates, that is, 2.81 feed units in all. Heavy weight young bulls (400 kg or more) receive roughly the following daily ration: 5 kg of hay, 5 kg of straw, 20 kg of silage, 6 kg of concentrates and 12.65 feed units in all during a 24 hour period.

This is based upon computations. However the availability of the feed does not always conform to the needs of the branch and thus importance is attached to preparing the feed for feeding to the animals. At a spetskhoz there is a feed preparation shop where concentrates (in an S-12 mixer) and straw (in a steaming unit designed by the farm's experts) are steamed. During a period of 9 hours of work, the department can prepare 180 tons of feed mixtures containing the necessary additives. For calves which have left the milk age (weight up to 160 kg), a substitute whole milk is prepared the principal components of which are skim milk, barley meal, fish oil, Biavit-80, poly salt, lysine and common salt.

The feed preparation shop is serviced by two tractor operators (one operates a bulldozer and the other brings up and shreds the straw), 10 operators and one senior worker who controls observance of the regime and the feed preparation technology.

This small collective operates on the basis of a brigade contract and the payments for its work are dependent upon the amount of weight increase achieved in the animals serviced. The average monthly wage for workers in the feed preparation shop is 260-270 rubles. This progressive form for organizing labor and the payments for the final products is also being employed by other brigades and teams in the maturing and fattening of young bulls.

Positive experience has been accumulated in the production of beef based upon interenterprise cooperation at the spetskhozes Atbasarskiy, Vishnevskiy and other Tselinograd specialized farms.

At the same time, the further development of specialization and concentration in beef cattle husbandry is being held back by a number of unsolved problems.

Condition number one -- a stable feed base -- has not been observed in all areas. Thus some spetskhozes are importing considerable quantities of silage and straw from other farms or even rayons throughout the oblast. Computations reveal that the transporting of this feed for a distance of only 30-50 kilometers doubles its production cost and this subsequently raises the production costs for the products. And since almost 70 percent of the ration for cattle consists of succulent and coarse feeds, the transport operations tend to increase the production cost for the weight increased by 25-30 percent.

The second condition. Up until recently, interenterprise cooperation in the production of beef was carried out in Tselinograd Oblast based upon intra-branch division of labor. The program involved three independent stages for beef cattle husbandry -- reproduction of young stock with raising of the animals to a weight of 40 kg; maturing of young bull replacements to an average weight of 250 kg; final fattening. But the establishment of the maturing operations (second element) as an independent subunit did not produce the results anticipated and thus at the present time this phase is being carried out partially at reproduction farms and partially at specialized fattening farms.

Experience confirms the feasibility of transferring the second element to fattening spetskhozes, that is, the younger the bulls the easier it is for them to adjust to an industrial technology. And fewer animals being withdrawn from the program means greater productivity. Thus, for the Yermentauskiy Spetskhoz on the whole, the withdrawal of young cattle stock in recent years amounted to 0.3-0.5 percent. At the same time, in the maturing of early age young bulls the average daily weight increases exceed 700 grams per head -- almost twice as high as the figure for other farms in the oblast. The Yermentauskiy Spetskhoz is presently preparing to convert over to accepting young stock the average weight of which is less than 100 kg (in 1982 the average weight of young bulls delivered to the spetskhoz was 159 kg, compared to 264 and 277 kg in 1976 and 1977 respectively).

It should be emphasized that generally speaking the process of assigning animals for maturing and fattening at specialized farms has not been properly organized. The oblast's sovkhozes are the principal suppliers of these animals. The spetskhozes purchase their young cattle stock from the population. But whereas the initial partners in cooperation are "controlled" -- through

contractual relationships it is possible to regulate the deliveries of animals of different weight and age categories and this ensures stable operations for the spetskhозes -- the private sector for all practical purposes is unable to observe these requirements.

In this regard, it appears advisable to release the spetskhозes from purchasing young cattle stock from the population and orienting them more towards business-like arrangements with supplier-farms, thus ensuring rhythmic production operations.

On the other hand, shareholder farms must be required to observe the principle of cooperation in a very strict manner. Indeed it is no secret that some sovkhoz leaders believe that it is possible for them to "depart from cooperation" at any time (they maintain that it is voluntary!) and to violate the contractual discipline concerning deliveries. As a result, the production process suffers, since the non-fulfillment or untimely fulfillment of contracts leads to insufficient use of capabilities and the labor and material resources of the spetskhозes. For example, during the 1976-1980 period the oblast's spetskhозes were supplied with 66,600, 75,300, 54,300, 60,000 and 53,700 head of young stock respectively. The differences in annual deliveries were caused mainly by failure to observe contractual discipline. At this same Yermentauskiy Spetskhоз, these figures ranged from 3,787 to 8,696 head.

In other words, some economic leaders are undermining the principle of voluntary cooperation with their concept of anarchy. True, references are being made to objective factors: it is maintained that the farms have their own plans for supplying the state with meat and thus young bulls are not being turned over to the spetskhозes. This is a narrow-minded and non-state position. And the new organs for administering agriculture -- RAPO's rayon agroindustrial associations and oblast agroindustrial associations -- are obligated to put an end to it. For it is they who must coordinate the relationships between the partners in cooperation.

I would like to draw attention to the question as to how to determine the number of shareholder-farms and their attachment to the same spetskhоз. Let us examine what happened in the case of the Yermentauskiy Spetskhоз: in 1976 it had five partners in cooperation, in 1977 -- 3, in 1978 -- 2, in 1979 -- 2, in 1980 -- 6 and in 1982 -- 6 farms in the rayon.

Similar to other such enterprises, the Yermentauskiy Spetskhоз obviously needs permanent suppliers who can ensure the simultaneous maintenance on a fattening regime of no less than 8,000-10,000 head of cattle -- the optimum level for a modern spetskhоз in accordance with the recommendations of specialists.

The economic relationships of those participating in cooperation are in need of considerable improvements. It would seem that they have but one goal -- to produce more products of the best quality. But unity of purpose is often achieved using methods in which each party looks out for his own interests. Thus reproduction farms strive to sell young stock at higher prices, while maturing farms attempt to purchase them at cheaper prices.

It is obvious that economic levers must be skilfully employed here, levers such as price, credit, budgetary appropriations and so forth. And they are

being employed. However, one effective factor, profit, is still not playing a proper role in interenterprise cooperation in beef cattle husbandry. Among the specialists there is still no united opinion regarding the problem of objective distribution of profits in conformity with the true contribution made by an individual farm towards the final results of cooperative production.

It is believed that the different approach being employed for this problem and the absence of specific recommendations are delaying a strengthening of cost accounting principles in interenterprise cooperation. For example, the plans call for the establishment of two values for the accounting prices: one for reproduction farms and the other for farms engaged in the maturing of cattle. Moreover, it is stipulated that the maturing and fattening farms will be supplied with young bulls of a definite weight and age (for example, a weight of 40 kg for maturing farms and 250 kg for fattening farms). In actual practice however, these conditions are not being followed for various reasons and quite often as a result of production requirements. Thus, in 1981 and 1982 the Shalkarskiy Spetskhоз was supplied with young bulls weighing an average of 180 kilograms, although its production technology was capable of handling heavier animals (up to 250 kg). The Sofiyevskiy Sovkhоз, which specializes in maturing the animals, should be supplied with young stock weighing up to 40 kg. But only two percent of the animals delivered fell within this weight category. In some animal groupings, the average weight of the cattle was 60, 75, 110, 120 and even 175 kilograms. In the face of such poor coordination, how is it possible to obtain a uniform evaluation for 1 quintal of live weight in animals supplied by partners in cooperation?

Unfortunately, a scientifically sound method for employing accounting prices in economic studies is still lacking and their limits have not been defined. In particular, an opinion has been expressed regarding the need for establishing local accounting prices for an individual rayon or microzone. But, as is known, a large number of them in a definite zone disrupts orientation with regard to the purchase prices, weakens their stimulating function and in the final analysis restrains an expansion in the limits of interenterprise relationships. Thus, for example, how is it possible to evaluate correctly the value of offspring at birth? Indeed, this is the basis for computing the accounting prices. Some specialists propose the use, as an evaluative indicator, of expenditures for milk, for maintaining a cow during a 2 month interlactation period, according to the number of feed-days for the maintenance of a dairy cow and so forth. But an evaluation of offspring according to this variant produces different results. For example, the average production cost for a quintal of milk in northern Kazakhstan at the present time is roughly 31 rubles and the cost for maintaining a cow over a 2 month interlactation period -- 106 rubles. These indicators differ in other zones and even the cost of a feed-day varies greatly in some oblasts.

The use to be made of the offspring must also be taken into account -- in dairy cattle husbandry it will be for so-called by-products and in beef cattle husbandry -- for the principal products. Of 2,000 farms in the republic engaging in cattle husbandry operations, 720 are breeding beef cattle. Among their number there are 71 specialized farms. Hence, when evaluating offspring at birth, an orientation towards the expenditures for maintaining dairy cattle, for the purpose of developing the accounting prices, is not

fully justified. It is believed that the principal criterion for evaluating offspring in dairy cattle husbandry must be the level of effectiveness for the further maturing and fattening of the cattle.

There is still one other important problem -- determining the savings amounts in the accounting prices. In economic literature, one encounters proposals concerning the need for including only a portion of the computed profit in the accounting prices. But it is our opinion that this does not respond to the cost accounting interests of the suppliers and takes into account only the interests of the purchasers. As is known, the supplier-farms perform more labor-intensive and capital-intensive work than do the purchasers, who are engaged in raising cattle belonging to older age groups. Moreover, the labor processes at buyer-farms are as a rule mechanized and even less capital-intensive.

The failure on the part of one of the partners in cooperation to receive the portion of profit due him from joint production adversely affects the overall operational results and delays the development of branch specialization. In conformity with the existing norms, the profitability level with regard to production costs which ensure expanded reproduction must be not less than 35-40 percent. Hence the proportion of savings in the accounting prices must conform to these amounts. In addition, it should be differentiated in a manner so as to ensure equal opportunities for expanding production at individual farms -- participants in cooperation.

Under the conditions existing in northern Kazakhstan, the proportion of savings in the accounting prices can be determined in the following amounts: for reproduction and maturing farms -- from 30 to 50 percent, for fattening farms -- 15-20 percent. This will satisfy the minimal requirements of farms for profit, for ensuring expanded reproduction.

An analysis of expenditures during various stages in cooperative production underscores a change in the production cost level for 1 quintal of live weight depending upon the age and weight of the young cattle stock delivered to the spetskhозes. In conformity with the change in the production cost level, a change must also obviously take place in the accounting price level. At the present time, a different differentiation for the accounting prices is being employed in some oblasts of Kazakhstan. In Tselinograd, Turgay and Pavlodar oblasts, they are differentiated into 5-8 weight intervals, in Aktyubinsk, Uralsk and a number of other oblasts -- into 10-11 intervals and so forth. In Tselinograd Oblast, the difference in evaluating 1 quintal of live weight in young cattle stock, the average weight of which is 40 or 41 kg (that is, an interval of only 1 kg), is 130 rubles and in Pavlodar Oblast a similar animal is evaluated according to unified prices.

It is believed that such lack of coordination in the evaluation of young stock of similar quality, all other conditions being equal, does not have an economic foundation. Certainly, the extensive and flexible differentiation of accounting prices is necessary. It makes it possible to take into account more completely the interests of the farms and it creates stimuli for improving the final results. Nevertheless, it is considered to be more expedient to employ a single differentiation for accounting prices in the republic, for example within an

interval of 10 kg. If this is not done, then the great diversity in the delivery conditions for young stock in terms of weight and age parameters could lead to substantial shortcomings in the production cost and profitability levels per quintal of live weight in the animals being delivered.

Commencing on 1 January 1983, in conformity with the decisions handed down during the May (1982) Plenum of the CPSU Central Committee, new and higher purchase prices were established for cattle sold to the state. This increase in prices is affecting growth in the total profitability of beef cattle husbandry. If the accounting prices are left at the former level, the additional profit realized from these measures will accumulate at the fattening enterprises engaged in the final stage of cooperative production. Hence, further regulation of the accounting prices is required in order to ensure equal economic conditions for all participants in interenterprise cooperation.

At the present time, the development of accounting prices for cattle, feed, materials and other resources falls within the competence of the rayon agroindustrial associations. The RAPO councils must carry out a great amount of work in connection with improving economic relationships among cooperating farms, the effectiveness of which is greatly dependent upon the accounting price level for the products of the exchange.

There is one last consideration. The branch structure should be thoroughly analyzed. The fact of the matter is that up until recently the raising of replacement cattle was carried out quite well in Tselinograd Oblast based upon the principles of interenterprise cooperation. Thus, on 1 January 1982 19 farms were specializing in the raising of non-calving young cows. But by the end of last year, only seven of these farms remained. This brought about a considerable reduction in the number of animals being raised on an inter-enterprise basis (many farms which specialized earlier have now been reoriented towards raising non-calving young cows for satisfying their own requirements). Such a departmental approach towards specialization is not in keeping with the tasks confronting animal husbandry operations throughout the republic.

The new organs for administering the agroindustrial complex at the oblast and rayon levels can and must solve the mentioned problems in a more bold manner and implement more actively specialization and concentration in agricultural production -- important factors for the successful carrying out of the country's Food Program.

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LIVESTOCK

PREVENTIVE MEASURES TO REDUCE ILLNESS IN YOUNG CALVES

Moscow SEL'SKAYA ZHIZN' in Russian 7 Mar 84 p 2

Article by S. Tzhupina, director of the Institute of Experimental Veterinary Science for Siberia and the Far East and Yu. Dol'nikov, professor and head of a laboratory for veterinary preparations, Novosibirsk Oblast: "So That the Young Stock Will Be Healthy"

Text It is known that during the period of mass calving of cows on dairy farms, in the winter and early spring, a majority of the newly born calves are stricken with gastro-intestinal diseases and despite medical measures many of them perish. Usually the prophylactic and treatment means employed -- antibiotics and sulfanilamide and nitrofuran preparations -- prove to be ineffective in many instances. Nor do preparations made from animal and vegetable materials always produce positive results: gastric juice, intestinal meal, blood serum, gamma-globulin, curative grasses and others.

Thus, animal husbandry today requires more effective preparations for the prevention and treatment of widespread diseases of the gastro-intestinal tract in newly born calves. A requirement exists for preparations which possess simultaneously an anti-microbe curative action and an ability to stimulate resistance in animal organisms. At the same time, they must be available for use on an extensive scale in animal husbandry and, a point which is of considerable importance, they should be able to be given to the calves using a simple and non-laborious method, for example together with milk or drinking water.

A production check has shown that these requirements are fully met by combined preparations, so-called "kombitery" (combined therapeutics). They were developed at the Institute of Experimental Veterinary Science for Siberia and the Far East (city of Novosibirsk). The first of these, given the name LERS, successfully underwent production testing over a period of 5 years (1979-1983) in nine krays and oblasts of the RSFSR. The use of this preparation for prophylactic purposes lowered the disease rate in calves, in terms of gastro-intestinal diseases, by an average of 40 percent and animal losses fell by a factor of 7-9 compared to the usual treatment and did not exceed 1.7 percent of the number of sick animals. The preparation has been tested on 550,000 calves.

For example, the use of this preparation at the Doroninskiy and Chikskiy sovkhozes in Novosibirsk Oblast made it possible to lower the disease rate in

newly born calves from 88 to 11 percent and to eliminate animal losses completely, although such losses exceeded 13 percent of the overall number of animals when the usual treatment was employed.

It is important to emphasize that LERS was employed mainly at those farms where calves suffer severely from gastro-intestinal diseases and other preparations did not produce satisfactory results. The veterinary specialists on the farms noted two important advantages of the LERS preparation. First of all, its use prevents the formation in the stomachs of calves of solid casein lumps (casein-bezoars). Secondly, the method of employing a LERS solution, giving it to the calves in milk or drinking water, is very simple and convenient and thus the calf-tenders themselves very willingly give the solution to the animals and this ensures its regular use and high effectiveness.

The second preparation -- Startin -- is very similar to LERS in terms of its purpose and curative-preventive action and yet it differs in terms of its components and its additional advantages. It was developed during the 1981-1983 period and it has been tested successfully on 20,000 newly born calves at experimental and base farms in a number of oblasts in Siberia. When the preparation was used for prophylactic purposes, the number of calves having gastro-intestinal diseases decreased an average of 50 percent and animal losses fell by a factor of 10 compared to groups which received the usual treatment and did not exceed 1.2 percent of the number of sick animals. Startin possesses an advantage over LERS in that its components (raw materials) are considerably more accessible and the preparation itself is cheaper to prepare by a factor of three. At the present time, the study of Startin has been completed and we are prepared to turn it over for production testing.

Based upon accumulated data, we can state with confidence that the use of the mentioned preparations will provide more reliable protection for calves against gastro-intestinal diseases and protect them. The effectiveness of these preparations can be expressed more clearly using the language of figures. For example the treatment of 1 million calves with LERS would cost roughly 2.7 million rubles and with Startin -- 0.9 million rubles. And as a result of the prevention of disease and calf losses, the kolkhozes and sovkhozes would realize 23-27 million additional rubles of profit. On farms in the RSFSR alone, the mentioned preparations will aid in preventing losses of approximately 1 million animals annually.

Those animal husbandry workers who have already tested LERS and STARTIN are at the present time persistently striving to obtain them. In this regard, veterinary production laboratories in a number of oblasts and krays in the RSFSR, acting upon their own initiative, have commenced the homemade preparation of LERS, adding the required chemical components in the absence of funds and using all possible means. At times they are engaging in a curious competitive struggle for the required raw material sources. This can only arouse concern over the fact that such uncontrolled preparation of this medicine can only result in violations of the technology and, it follows, in low quality preparation. And this eventually can lead to a reduction in the effectiveness of use and even in the discrediting of the preparation. There can be only one solution for this problem -- the industrial preparation of LERS and thereafter Startin must be organized at several chemical-pharmaceutical enterprises of the Soyuzglavzooovetsnabprom system.

It is our hope, in the interest of ensuring the rapid and mass industrial production of the kombitery preparations, that the ministries of agriculture for the RSFSR and USSR and also the ministries of the chemical, medical and food industries will display proper interest in this important work.

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AGRICULTURAL MACHINERY AND EQUIPMENT

UDC 633.1:631.55

NEWER GRAIN COMBINING TECHNOLOGY DESCRIBED

Moscow ZERNOVOYE KHOZYAYSTVO in Russian No 1, Jan 84 pp 10-12

[Article by E. V. Zhalnin, department director in VIM [All-Union Scientific Research Institute of Agricultural Mechanization]: "A Comprehensive Approach Toward Mechanized Harvesting"]

[Text] The comprehensive mechanization of grain harvesting presupposes the efficient completion of all operations by machines in accordance with agro-technical requirements. As a direction in technical progress it must replace the production of large "single capacities" of individual machines. At the present time in the country we have developed the largest and most efficient combine fleet in the world which can harvest all grains in 40 hours. In actuality because of the absence of technical means for the comprehensive harvesting of grains and because of the inability to utilize existing equipment to full capacity most enterprises spend 25-26 days on the harvest, thereby loosing a minimum of 15-20 percent of the grain through shedding. The productivity of combines has practically not changed at all in the last 15 years and comprises 7-7.3 hectares per day; work technology is frequently violated. For example, for Kazakhstan it is recommended that the following be used: wide headers and swathe reapers, large-capacity trucks and trailer wagons for combines to collect the non-grain portion of the harvest. Nevertheless, for over 20 years now only 6-meter reapers and 5-meter headers have been received here. There is a shortage of wagons and trucks. The USSR Non-Chernozem Zone has for a long time been in need of a relatively light, maneuverable combine with good rough road performance, with special working parts and with a header, capable of harvesting lodged, tangled grain crops having an increased moisture content. However, these are not in production and regular machinery must be utilized instead, thereby violating recommended technology. In a number of steppe regions of the Transvolga, Kazakhstan and Siberia depending on the time of year it is imperative to conduct two-stage harvesting or direct combining operations, for which broad (10-12 meters) swathe reapers and headers are needed. Such reapers are produced in small numbers, but headers are not manufactured at all (with the exception of experimental models). Because of this enterprises are forced to utilize two-stage harvesting primarily. With a yield of up to 15 quintals of grain per hectare and a stalk height of 50-60 centimeters swathes fall through the sparse stubble and there are great losses during collection. In addition, only direct combining is recommended for a number of strong and durum wheats cultivated here. Thus again there are violations of recommended technology.

Chart 1. Structure of Combine Designs Sold to 1986.

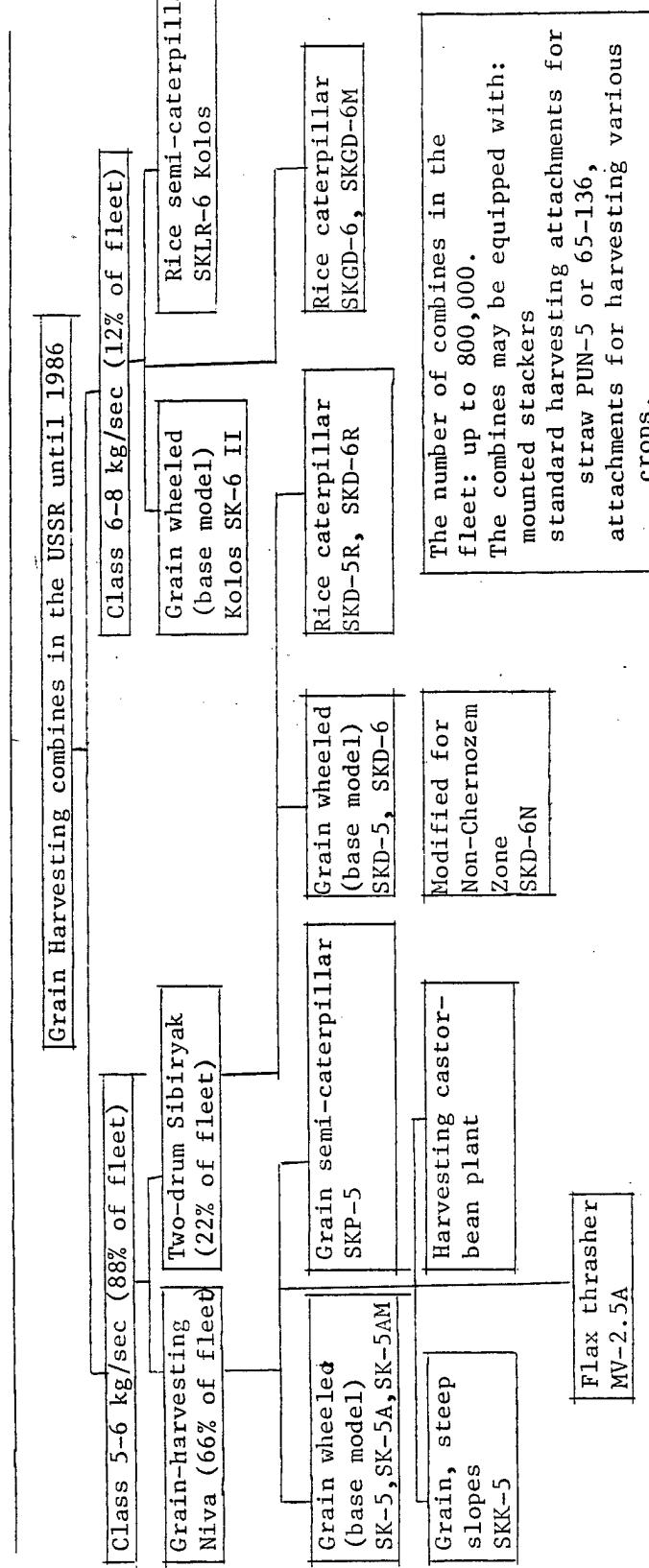


Chart 2. Schematic Structure of Future Combine Designs for 1986-1995 (draft).

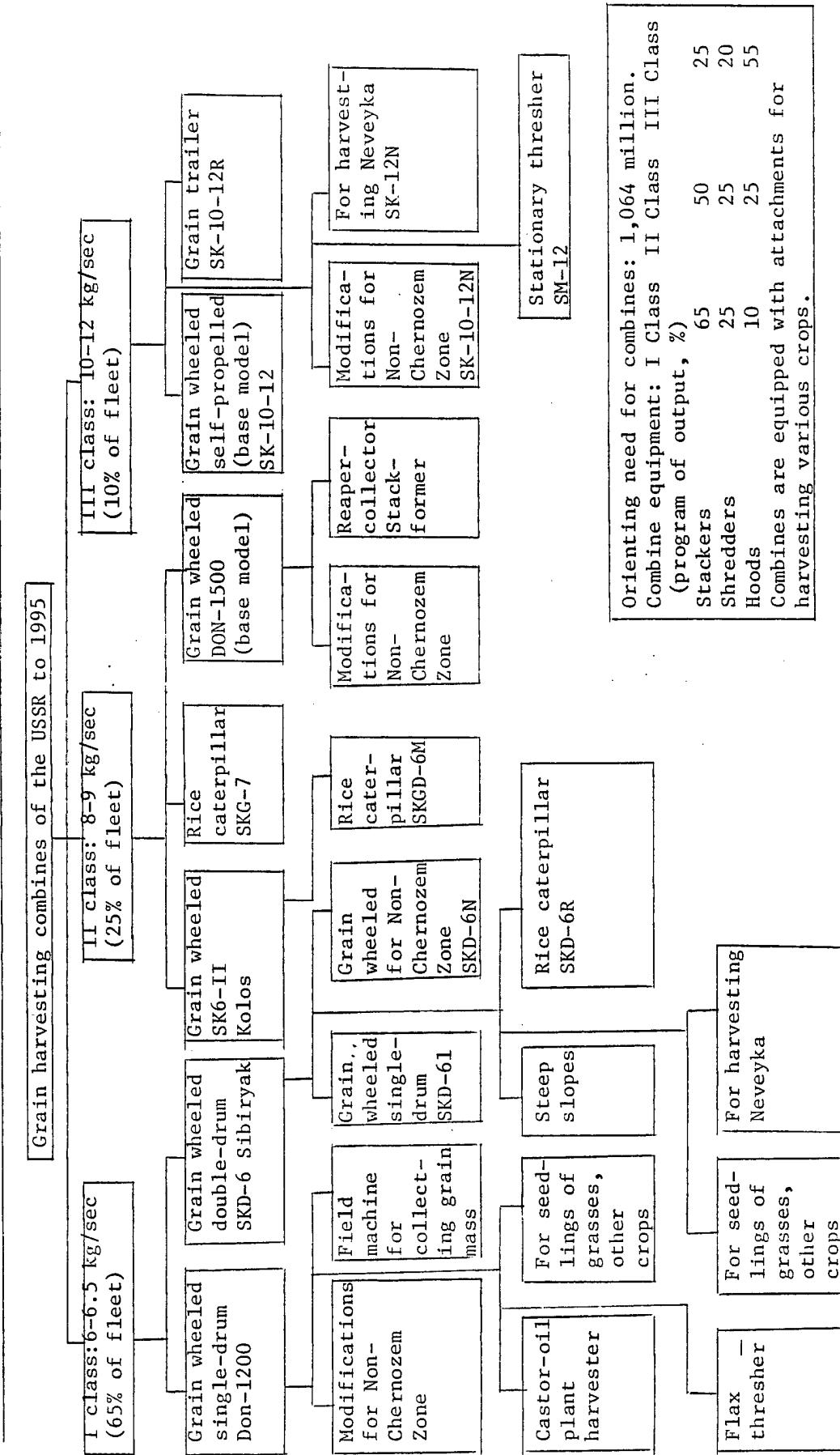


Chart 3. Zonal Units of Grain Harvesting Machinery

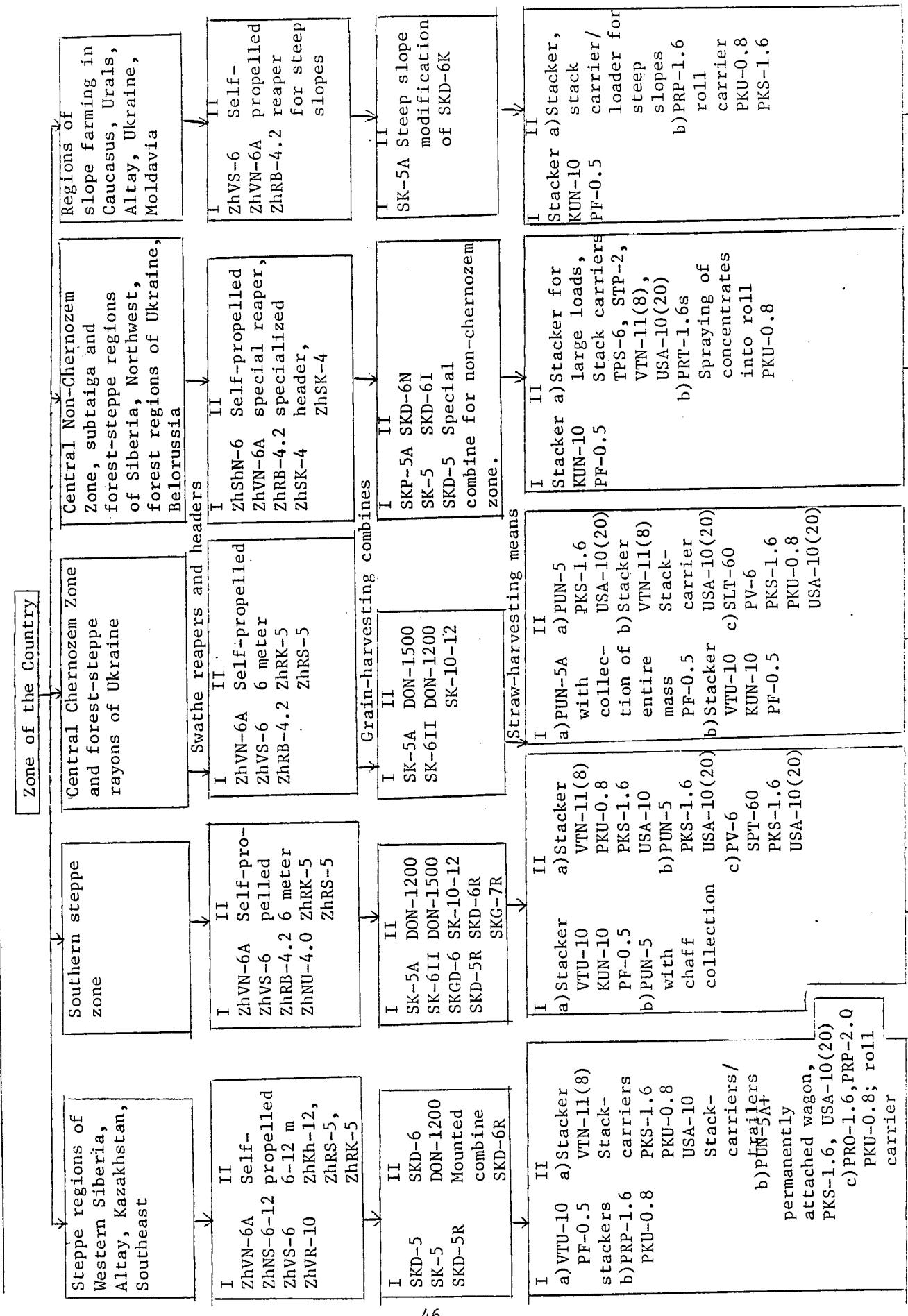
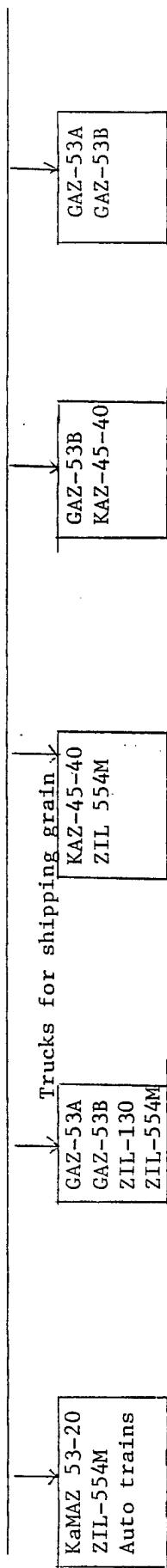


Chart 3. (Continued)



Note: I-nomenclature of machines being produced.
II-recommended nomenclature of basic machinery by zones.

During the first years of the implementation of the USSR Food Program it is important to properly evaluate the status of mechanized grain harvesting and to indicate optimal ways to further improve it. In this plan a considerable amount of work has been done by the scientific-research organizations of the country in close collaboration with the GSKB [State Special Design Office] of Industry and the USSR Goskomsel'khoztekhnika [State Committee of the Agricultural Equipment Association].

The main conditions for the complex mechanization of grain harvesting are: the development and introduction of scientifically-based machine designs and the use of the optimum structure of harvesting-transport units with a consideration of zonal characteristics of grain production; fluidity in implementing operations with the securement of the entire biological harvest; and the utilization of optimal technology, including the organization of work, controls over quality and a system of wage payments based on the final product.

In accordance with the first condition designs have been developed for swathe reapers, combines and straw-harvesting equipment and the optimum structure for harvesting-transport units has been determined for various zones (Charts 1, 2 and 3). In the future the most important focus will be the orientation toward self-propelled swathe and broad reapers and a combine design consisting of three base models with a turnover capacity of 6, 9 and 12 kilograms per second. The transition of swathe reapers to the self-propelled type of unit will provide an annual savings of fuel in the country of 150,000-180,000 tons and will free almost 300,000 combines from forming units with them. The introduction of broad reapers and headers (up to 10-12 meters) will enable us to increase the productivity of harvesting by a factor of 1.5-1.8 and to correspondingly decrease the time needed for harvesting and grain losses.

Chart 1 presents the combine designs sold up to 1986 according to the "Machine Systems for the Complex Mechanization of Agricultural Production for 1981-1990." Chart 2 presents future designs until 1995 (draft). The former consists of two classes of combines and three base models--Niva, Sibiryak and Kolos; the latter--of three classes of combines and three base models with an extensive modified nomenclature.

Among the models sold the largest role is played by the SK-5 Niva and SKD-5 Sibiryak combines in the class of 5-6 kilograms per second and a thrasher width of 1,200 millimeters. In the future the turnover capacity will be increased to 6-6.5 kilograms per second, but their proportion in the fleet will decrease from 88 to 65 percent as a result of the manufacture of machines with a greater productivity.

On the basis of test data it has been determined that combines of the class 6-6.5 kilograms per second are most effective with a yield of up to 20-25 quintals per hectare; of the class 8-9 kilograms per second--with a yield of up to 30-35 quintals per hectare; and of the class 10-12 kilograms per second--with a yield of over 35 quintals per hectare. By maneuvering the speed of the machine's movement and the width of the reaper (header) it is possible to surpass these limits to a certain extent.

The development and introduction of new grain combines Don, Rotor and SKD-6 Sibiryak is the next stage in the development of native combine construction; these can be considered the fourth generation of Soviet combines. The main characteristic of the new machines is their increased productivity as a result of the increased turnover capacity of 30-40 percent, of increased energy supplies to 25-28 horsepower per 1 kilogram/second of grain mass, of increased bunker volume to 4.5-6 cubic meters, of increased productivity of the unloading screw conveyor to 2 tons/minute and the width of the header to 6-7 meters, of the introduction of hydraulic transmission, of improvements in the working conditions of the combine operator, of improved passability, and so forth.

In designing the fourth-generation combines there was a partial movement away from the classic design of the thrasher--the beating drum and key straw shaker are being replaced by an axial-rotor thrashing-separating unit which allows for more contact with the grain mass by increasing its time in the thrashing and separating zone. This principle is being used to develop the combines of class 10-12 kilograms/second.

To implement the second condition of the complex mechanization of harvesting operations in 1982 we completed the elaboration of various harvesting technologies for the non-grain portion of the harvest (stacking, flow and swathe) and of machine sets for them. The necessity of the given elaboration arose from the fact that because of imperfections in existing resources for collecting straw and chaff enterprises are frequently late with the preparation of fields for the next year's harvest.

Improvements in stacking technology will move in the direction of increasing the capacity of stacks from 9 to 14 cubic meters as a mounted unit and to 20 cubic meters as a trailer, of increasing the density of the stack and its mass to 300-350 kilograms and of including pushing bunching rakes with T-150 and K-700 tractors instead of cable-frame set-ups. Measures are being taken for the equal distribution of chaff within the stack, which should decrease its losses. The USA-10 stack builder is being readied for production. In the country as a whole stacking technology will be utilized on 60-70 percent of the harvesting area (instead of on 90 percent); in other words, it will remain the main method in all regions. This is based on the high degree of productivity of pushing bunching rakes and on the simplicity of the resources utilized.

There should be a significant expansion in the use of flow technology to harvest the non-grain portion of the harvest on the basis of utilizing standard shredders or chaff-collectors (20-25 percent of the harvesting area). Whereas at the present time the main zone for the use of this technology is the central regions of the Ukraine, in coming years it will be introduced in the Northern Caucasus, the Crimea, Moldavia and the Central Chernozem Zone; and with the use of a permanently mounted unit on the combine wagon--in regions of the Transvolga, Kazakhstan and Siberia. But at the present time the introduction of flow technology is being hindered by the absence of the necessary quantities of dependable shredders and tractor wagons.

With the appearance in the fields of the Don-1500 and Rotor-10-12 combines there will be increased swathe harvesting technology employed for the non-grain portion of the harvest and the PB-6 collector, the SPY-60 collector-stack former, rolled presses and so forth will be used.

Improved stacking technology is recommended for all zones in the country, but especially for enterprises with limited use of chaff for the needs of livestock raising. Flow technology with the use of shredders on combines is preferred in enterprises with developed livestock raising and the presence of intertilled crops (Ukraine, Moldavia, southern steppe zone of the USSR, and in part, Kazakhstan and Siberia). Flow technology with silaging of moist straw in a mixture with green grass and fermenting preparations is preferred for the Central region of the Non-Chernozem Zone of the RSFSR. Flow technology with the use of collectors, presses-collectors, roll presses and rollers of collectors-stack formers is recommended in zones with a large grain yield (over 30 quintals per hectare) and a mass use of combines of the classes 8-9 and 10-12 kilograms per second. Swathe harvesting with the pressing of straw into rolls and their treatment with liquefied ammonia is effective in the northern part of the Non-Chernozem Zone of the RSFSR. Swathe technology with the use of double swathing and stack collectors is recommended for the southern steppe zone of the USSR, Kazakhstan and the Transvolga.

At the present time we have elaborated six agrotechnical requirements for new straw-harvesting machines; nine machines have been manufactured and have passed state testing and 20 names have been included in the "System of Machines" for 1981-1990, of which five have been recommended for manufacture, nine are being manufactured and six are in various stages of development.

Calculations on the economic effectiveness of the recommended straw-harvesting machines show that their introduction into production will secure a decrease in labor expenditures of a factor of 1.5-2, in expenditures incurred--by 20-25 percent, in losses of straw--by a factor of 1.5-2.5 and in the duration of harvesting--by a factor of 3-4. The increase in gross grain yield resulting from the timely plowing of the soil will equal no fewer than 12-15 million tons per year.

In order to fulfill the third condition of the complex mechanization of harvesting the scientific organizations of USSR MSKh [Agricultural ministry] and VASKhNIL are now working out technological maps according to zones in the country for the use of mass-produced as well as new machinery, investigating various schemes for organizing the harvesting process, lending precision to efficient variants for transporting the harvest from the fields, and searching for new forms of wage payments for machine operators with a consideration of the final results of their labor. A great deal of help in this can be rendered by indicators of grain losses, consumption meters and output gauges installed on new combines.

One of the effective forms of organizing labor for harvesting is the harvesting-transport complex with planning and management of harvesting and procurement processes on the scale of the administrative region (oblast).

Thus, the examination of the status of complex mechanization of grain crops and the measures being taken to implement this complex mechanization allow us to say that in recent years all of the scientific-production prerequisites have been created for the successful fulfillment of the indicated program to increase grain production in the country.

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TILLING AND CROPPING TECHNOLOGY

PREPARATIONS IN 1983 FOR FALL PLANTING

Moscow SEL'SKAYA ZHIZN' in Russian 17 Aug 83 p 2

[Unsigned article, under the rubric "The Food Program: A Search for Reserves", entitled: "May the Winter Fields Be Bountiful!"]

[Text] Specialists from the USSR Ministry of Agriculture and scientists from the All-Union Academy of Agricultural Sciences imeni V.I. Lenin discuss the planting of winter crops this year.

Winter crops are very important in the steadily increasing production of grain; they are better able to exploit the biological and climatic potential of the regions in which they are grown. Much work has been done in recent years to increase yields of winter cereal grains. New scientific varieties have been used in the field, and they are marked by greater resistance to disease, drought, lodging and the effects of winter. This means greater returns to fertilizer and other material-technical inputs.

New intense varieties have been developed and are being widely planted: semi-dwarf varieties of winter wheat and short-stemmed rye. The composition of predecessors of winter crops has greatly improved owing to the employment of a scientifically based agricultural system. The amount of crop predecessors found in the soil has decreased by 50 percent compared to 1980. The general level of agro-technology has also improved; we now see greater use of fertilizer and modern methods of soil preparation. Minimum-tillage cropping without overturning the soil is now practiced on one-third of the non-fallow predecessor crops.

Crop losses during winter germination have been reduced by a factor of 1.5, although they are still high. The experience of better farm workers shows that efforts to reduce such losses on many farms are inadequate. Those farms which have assimilated zonal systems of agriculture hardly ever re-plant the winter crop; every year they have excellent harvests. This year, not the most favorable one, the Kuban Kolkhoz of Ust'-Labinskiy rayon in Krasnodar Kray had winter wheat yields of 52.7 quintals per hectare. The Kolkhoz imeni Krupskaya of Nizhnegorskiy rayon in the Crimean Oblast had yields of 56.6 quintals, the Kalinin Kolkhoz of Novomoskovskiy rayon in Dneproptrovsk Oblast 53.7 quintals, and the Kaz'minskiy Kolkhoz of Kochubenevskiy rayon in Stavropol Kray 47 quintals.

During the present five-year plan farm workers of Stavropol Kray were able to reduce losses of winter crops to a minimum and increase yields by 4.2 quintals in comparison to the 10th Five-Year Plan. The reasons were the following: a high level of agricultural practices, a well-conceived selection of agricultural machinery, and better adherence to technological demands. Farmers in the Kuban region constantly have good harvests.

Yet at the same time many farms in Rostov Oblast plant their winter grains on stubble of spikelet crops or predecessors that were harvested late; the fields are not worked on time, meaning a disruption of germination periods, and seeds are planted on soil that is poorly worked, not settled and full of clods. These farms do not work fertilizer into the rows during planting on all of the fields, and the main condition for successful winter germination is not achieved: the appearance of shoots at the most propitious moment and their concerted growth beginning in the autumn. Replanting is quite common here. Therefore we see huge losses of winter crops and low yields in Lipetsk, Penza and other oblasts in the Central Region of the RSFSR.

Together with the correct selection of both variety and predecessor and a precise observance of technical processes for soil preparation, it is most important to have the right combination of winter and spring crops in the rotation system. Many farm managers and specialists try to increase the yields of winter crops and reduce losses during the winter months by decreasing the amount of planted acreage. And, unfortunately, scientists frequently support such a procedure. Practice, however, shows that reductions or extreme increases in the planting of winter crops inevitably lead to reduced grain production.

On farms in Kalinin Oblast, for example, the amount of winter crops in the cereal group fell from 30 percent during the 9th Five-Year Plan to 18 percent during the 10th. There were greater crop losses, and yields in the cereal group fell by four quintals. In Kostroma Oblast during this same period, winter crops in the cereal group fell from 39 to 26 percent, while yields decreased by almost one quintal. And other regions in the country report the same situation.

The critical period in field work has now begun, the start of work on next year's harvest. And it is the task of the agronomical service to point out potential problem areas, to undertake correct procedures and to have optimal amounts of winter fields on each kolkhoz and sovkhоз. Conditions are favorable this year for successful soil preparation and planting of winter crops, and we must take advantage of them. It is good work on the part of farm managers and specialists to have excess supplies of seed and to prepare additional amounts of land for winter crops in the Central, Black Earth, Central Volga and southern area of the Non-Black Earth Zone.

At the same time the production structure for winter crops must be perfected. In particular this means increased outputs of rye in those areas where it is traditionally grown. For a long time it has been crowded out by winter wheat, and there are enough reasons for this. Varieties of rye are very

tall, and lodging often occurs on the larger fields. Harvesting of rye posed many problems for machine operators, and the harvesting of winter wheat really overtook that of rye. Now these problems have been resolved. Modern varieties of rye are short-stemmed--chulpan, voskhod-2, talovskaya-12, khar'kovskaya-78; they can be grown under technological processes and are quite resistant to lodging. Their yields are comparable to those for winter wheat.

The scientifically developed growth regulator, kampozan, whose benefits have been proven in extensive production, is used when winter rye and turgidum are planted. Stem length is greatly reduced, and the plants become much more resistant to lodging. And, of course, the harvests are better. Farms in Belorussia and the Baltics have adopted this agronomical development; kampozan is now used in more than one-third of the plantings.

The rapid ripening of cereal grains this year, the fast pace of harvest work and the removal of stubble from fields at an early date--this means the possibility of preparing the soil well, on time, for the winter crops and for the uncultivated predecessors, especially by the shallow-tilling method. This means that field preparation takes less time and that moisture is retained in the upper layer. During plowing, especially of dry and compacted soil, clods are formed, and they must be worked repeatedly. This would mean a loss of moisture, the drying up not only of the upper but also of the entire arable layer. Expenses increase as does the time necessary for soil preparation. Plant shoots in such fields really only appear after abundant rain.

When the soil is being worked, a critical element in moisture preservation is aeration, done immediately after or concurrently with harvest work--without an interval. And failures occur when this practice is not adhered to. A moldboard should not be used for soil preparation. The choice of field work must be based on crop predecessors and soil condition. On those fields in the Ukraine and the Kuban region where weeds are starting to come up after the winter crop, bastard fallowing of the soil gives the best results. In any case, weeds must be removed from fields.

Good soil preparation, done on time--this is a good basis for fall planting at the most favorable time. Such work is now proceeding at a much faster pace than last year all throughout the country.

However, just as in the past, kolkhozes and sovkhozes in the Mari ASSR, Vologda, Chelyabinsk, Sverdlovsk and other oblasts are slow in clearing their fields; it is already time for fall planting.

The agronomical service to agricultural organizations, kolkhozes and sovkhozes must maintain strict control over optimal planting times, a decisive factor for a good harvest of winter crops. Experience has shown that when sowing is done too early, the plants overdevelop and become broken up, often with heavy losses; when the planting is done too late, side shoots and roots don't develop adequately, and plants aren't able to make use of fall and spring moisture in the soil, meaning that they suffer from dry periods in the spring and summer. Many farms still have not learned this.

We shouldn't have to convince specialists of the benefits of applying organic and mineral fertilizers to winter crops. Many kolkhozes and sovkhozes from the following areas are applying full doses of mineral fertilizers to their crops: the Baltic, Ukraine, Krasnodar Kray, Mari ASSR, Tambov and Vladimir oblasts. At the same time, though, farms in Voronezh and Saratov oblasts are applying less than one quintal of mineral fertilizer per hectare of winter crops, while other farms aren't applying any at all.

Particular attention must be given to row application of phosphates during planting. Hardiness and yields of winter crops improve, and of course output per unit of mineral fertilizer also increases. For sure there is just not enough fertilizer, so it is important to stress the best methods of application. And there is no justification for what has happened in recent years, when two-thirds of the land in Volgograd and Kuybyshev oblasts and part of the land in Kirov Oblast and in the Tatar ASSR did not receive any phosphate fertilizers.

The amount of fallow land has sharply increased in recent years. For agronomists the most important task is to ensure adequate returns from each hectare of fallow land; this means appropriate planting methods for winter crops.

Several kolkhoz and sovkhoz managers and specialists begin fall planting on fallow lands, these having the greatest moisture content. It is well known that optimal planting time for any crop on clean fallow lands occurs somewhat later than on non-fallow lands with predecessor crops. In this instance, an early sowing means plant overdevelopment, reduced winter hardiness, increased lodging, losses to disease, and severely reduced yields. All of this occurs--quite frequently--when norms for planting on fallow fields are set too high.

A fine application of nitrogen is highly effective against lodging and plant diseases. It should really be worked in at the time of grain harvest, not on the post-harvest vegetation. And applications of retardants and of highly effective systematic fungicides are mandatory, also herbicides when called for. Intense chemical use in the cultivation of winter crops is beneficial only when these chemicals and mineral fertilizers are applied in a uniform and accurate manner. The best way to do this is to have permanent furrows, as the experience of many farms has shown. The Zavety Il'yicha Kolkhoz of Lipetsk Oblast, using the above-mentioned technique, had winter wheat yields of 52 quintals per hectare. Ivano-Frankovsk Oblast is now using this technique.

Experience of the best farms shows that constantly good harvests of winter crops are ensured when each farm plants not just one, but two or three varieties that differ in their biological characteristics. This means that the potential of each field can be more fully exploited on the basis of crop predecessors and fertilizer application, and that the effects of unfavorable weather can be mitigated.

Agricultural organizations must ensure that each kolkhoz and sovkhoz has enough high-quality seed for winter crops and that these varieties be region

specific. This means that seed harvesting must be done on time, that the seeds be processed for the planting season, and that they be stored in state reserves.

The agronomical service must pay particular attention to the placing of seeds in transferable funds, especially in the Non-Black Earth Zone. It is the shortage of seeds at the start of optimal planting time which leads to reduced winter crop harvests and poor yields. Over the course of several years seed storage in transferable funds has only been 35-40 percent of planned amounts, 5-20 percent on kolkhozes and sovkhozes in Smolensk, Ryazan, Orel and other oblasts. But this year we have the chance to resolve this issue. Seed from transferable funds will be used in future plantings of winter crops in this region, while at present most of the seed for winter crops is recently harvested. This means that seed preparation and procurement are of utmost importance: drying, heating, sorting and treating.

In recent years managers and specialists of kolkhozes, sovkhozes, agricultural organizations and plant protection stations in Voronezh, Bryansk and other oblasts have paid less attention to seed preparation, especially to timely and precise seed treatment. This year, as a result, there has been crop damage to winter wheat from stem rust, and the harvest is smaller and of poorer quality. Each kolkhoz and sovkhoz must set up specialized brigades supplied with mordants and using the latest work techniques.

A task that cannot be put off by the agronomical service--marked improvement in grain quality and increased output of vigorous winter wheat varieties. This means that existing potential in the North Caucasus, Ukraine and the Volga must be more fully exploited. In the southern fall-planting regions, hard winter wheat is sown; this must be done on clean fallow land that has received adequate applications of fertilizer.

Right now is the best planting time for winter crops in our country's northern and eastern regions. It is important that a good work pace be established from the very first day and that the planting take place at the most favorable time under controlled conditions of technological use.

Yields of winter crops in this, the fourth year of the five-year plan, will depend on correct application of a range of agro-technical processes which are specific for each region.

The strategy and tactics used in pre-planting and planting of winter crops must be based on a careful analysis of the lessons learned in previous years, use of the achievements in science and in work, and application of all modern methods that will ensure increased yields of these crops.

Agricultural organizations in all of our country's fall-planting regions must exert constant control over the sowing of winter crops, so that all work be done at a high level of agro-technical skills. A good harvest of winter crops plays a vital role in fulfillment of the USSR Food Program.

TILLING AND CROPPING TECHNOLOGY

CONTROL OF GROUND BEETLES IN WINTER WHEAT

Moscow ZASHCHITA RASTENIY in Russian No 2, Feb 84 pp 43-45

[Article by V.V. Poplovskiy, distinguished agronomist of the RSFSR: "The Ground Beetle"]

[Text] In 1981-82 the ground beetle caused much damage to the winter wheat crop in southern regions; intensive extermination measures were taken against it over a large area.

The ground beetle matures within a single generation. As grain is ripening the beetles feed at night on the spikelets; once the harvest is completed they concentrate on those areas where grain losses have occurred. At the beginning of August the females lay their eggs on the soil surface (each one 50-70 eggs). The larvae hatch within two-three weeks and live in the soil; at night they come to the surface and feed either on the leaves of shoots that have fallen or on other grasses. When the shoots of winter grain appear, the larvae feed on them (the leaves look shredded). With the advent of fall the larvae bury themselves deeper into the soil where they spend the winter. In the spring, once the average daily temperature reaches 7-8° C, the insects feed on grasses and then pupate in the soil. Within two-three weeks (usually in June) the beetles appear from their chrysalides.

The total acreage of farm land plagued by the ground beetle actually decreased in 1983, this due to timely efforts against the pest. In those areas subject to constant and serious menace, the danger to cereal crops is quite real, and control efforts must be continued. It is absolutely essential to prepare for and to ensure that all measures be carried out for ground beetle eradication in cereal plants.

In the southern Ukraine, North Caucasus, the Black Earth Region, Transcaucasia, Moldavia and other areas where the pest is widespread, it is critical to carry out all systematized recommendations.

It is under conditions of continuous planting of cereal crops--two-three years or more--that massive reproduction of the ground beetle occurs. In such instances the beetles and larvae have an adequate food supply for several generations; this ensures favorable conditions for growth, reproduction and population increases in the soil.

Agro-technical measures, those that limit reproduction of the pest, are important in protecting cereal crops.

The timely and careful planting of grain-spikelet crops is most critical. On each farm where beetle infestation has been significant, a plan for control efforts must be developed, and the intensity of these efforts and the need for material and technical inputs (pesticides, sprayers, fueling equipment, etc.) must be determined.

It is essential to finish the harvest on time and to permit no grain losses. All hay must be transported from fields and stacked; there must be no isolated haystacks.

Sprouts from the crop that is left on the ground serve as an excellent food for the pest, so the stubble must be removed, leaving enough time to complete basic field work at least a month before planting time.

If the local agricultural system will permit it, then deep soil plowing must follow stubble removal in those cases where beetle infestation exceeds economically tolerable limits.

Ground beetle infestation is greatly reduced in those fields where sprout growth is rapid and timely; therefore high-quality seeds with good germinating qualities are used in fall planting, recommended regional pre-planting work is done, and fertilizer is used.

If the infestation of larvae is high, then grass crops (spikelet) must not be planted more than two years in a row.

For those farms that must replant the winter crop in the spring, then spikelet crops, corn and Sudan grass must not be replanted on those fields where ground beetle larvae are still feeding and where more than one specimen is found per meter². Some obvious crops to be grown here are legumes, sunflowers, sugar beets, castor-oil plants and melons. Only after the larvae have completed feeding can corn be planted on these fields.

Most of the efforts against ground beetle larvae are made in the fall. In 1982 some 76 percent of the control work was done during this period.

Those farms, located in areas of massive infestation and which have planted winter wheat on the stubble of the previous crop, they must treat the seeds with a 90 percent mixture of gamma-isomeric hexachlorocyclohexane (2 kg per ton)....

Control measures in cases where 10 percent of the crop is chewed up are economically justified in those regions which have steady crop yields of 20-35 quintals per hectare. And on those farms with yields of 30-35 quintals per hectare--very efficient grain production--control measures must be undertaken when ground beetle larvae have damaged five percent of the crop. Criteria for chemical control will be different in those regions with yields of less than 20 or more than 40 quintals per hectare.

Danger limits for ground beetle larvae can change, and so corresponding changes must be made.

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